Washington State University

Division of Governmental Studies and Services
Department of Political Science and Criminal Justice Program

WSP Traffic Stop Data Analysis Project

Data Analysis Project Report

June 1, 2003

Nicholas Lovrich, Ph.D.
C.O. Johnson Distinguished Professor of Political Science and
Director, Division of Governmental Studies and Services
Washington State University – Pullman

Michael Gaffney, J.D.
Assistant Director, Division of Governmental Studies & Services
Washington State University – Pullman

Clay Mosher, Ph.D.
Professor of Sociology
Washington State University – Vancouver

Mitchell Pickerill, J.D., Ph.D.
Professor of Political Science
Washington State University –Pullman

Michael R. Smith, J.D., Ph.D.
Professor of Criminal Justice
Washington State University - Spokane

Table of Contents

Executive Summary

This Report describes the history of participation of a multi-disciplinary group of researchers associated with the Division of Governmental Studies and Services at Washington State University (WSU) in the Washington State Patrol's Traffic Stop Data Collection and Analysis project. It provides the results of a literature review and of a search for sources of traffic stop-related "denominator" data, and it sets forth the results of both simple descriptive and multivariate data analyses performed on WSP traffic stop data by that research team.

The collaboration between WSU and the WSP in this process has been highly fruitful and productive. During the process of both joint and independent efforts to address the issue of biased policing important improvements to data collection and reporting mechanisms have been made, useful training curriculum and agency policy changes have been initiated, and added dimensions of data analysis have been identified and carried out. Of considerable importance from the university-based research perspective have been: 1) the identification of significant additional sources of traffic stop-related data; 2) the refinement of inquiries into the contextual factors underlying traffic stop analyses; 3) the enhancement of detail in the recording of search activities attendant to traffic stops; and 4) the opportunity to help craft a methodologically rigorous approach to data analysis on the complex issue of biased policing. This effective interaction has resulted in a Traffic Stop Data Project which has facilitated complex and cogent contextual analyses of traffic stop data, with the ultimate goal of further enhancing the existing largely trusting relationship which obtains between the Washington State Patrol and the citizens of Washington.

The analyses described in this report explore considerably more deeply the initial observations revealed in WSP internal analyses (using a combination of statewide census demographic comparisons and comparisons based on accident records) that there are some differences in the rates at which minority citizens are stopped, receive enforcement action, and are searched by agents of the WSP. **Results reported here indicate that when other standards for rates of citizen contact such as statewide DUI BAC testing data and statewide FARS data and incident-specific contextual factors such as census demographics for smaller geographic areas (WSP Districts or APAs) and the seriousness and number of violations noted during traffic stops are considered, most apparent racial and ethnic disparities are either eliminated or greatly reduced.** The relatively few remaining observed differences in citation and search treatment are clearly place-specific (isolated localities) and likely affected by a set of factors that can only be explored more fully through direct observation and qualitative research processes rather than further traffic stop data collection and analysis.

Perhaps the most significant **primary finding** of the traffic stop data analysis effort, however, is that there is no evidence of a pattern of disproportionate stopping of minorities by Washington State Patrol officers. These findings are unequivocal and clearly demonstrated – **the likelihood of being stopped by the Washington State Patrol is not effected by the race or ethnicity of the drivers on Washington's roads and highways**. Unlike the majority of previous studies of racially coded traffic stop data conducted in other states and urban centers across the country, our analysis of the WSP traffic stop data indicate no evidence of biased policing in the rate of driver stops. The facial ethnic and racial disparities that are in evidence do not arise in the rate of stopping of specific minority group members, but rather are found in the

rates of citation and search. In this regard, the findings reported here point up the place-specific nature of the differential stop outcomes documented across racial and ethnic groups, with regional differences in enforcement focus, prosecutorial policies and preferences, the variable dictates of field supervisors, differing population bases, and varying socio-economic factors appearing to play major roles in citation and search events independent of the race or ethnicity of vehicle operators. **With respect to apparently disparate rates of citation and search, the seriousness of the violation and the number of violations observed represent particularly critical contextual factors that either eliminate or greatly reduce the effect of race or ethnicity of driver on the traffic stop outcome.**

The WSP plans to move even further towards the refinement of agency training, data collection and data analysis. In addition, the modicum of qualitative work undertaken by the university-based research team thus far strongly suggests the need for additional qualitative work (e.g., focus groups and in-depth interviews) among agency personnel, a possibility which has been recognized in the incorporation of racial profiling questions in the current statewide survey conducted by DGSS for the WSP as part of its CALEA accreditation activities. Several hundred citizens from all areas of the state have expressed their willingness to participate in focus group processes convened to explore the issues of citizen-Patrol relationships and biased policing. The depth of insight to be gained for the agency from this additional work is profound, and the utility of such analyses and the reports to be drawn from field observations, focus groups and interviews promise to set a high standard for racial profiling prevention measures for all other police agencies in the state of Washington and elsewhere across the country.

This report features both findings from an in-depth analysis of traffic stop data and the preliminary results of a statewide survey in which questions were included on racial profiling in traffic stops. It is clear from the survey results that many citizens believe that racial profiling is taking place, and that minorities are subject to disproportionate stops by officers of the WSP. Despite the clear evidence that WSP officers are not engaging in biased policing with respect to the stopping of motor vehicles, much of the public believes biased policing is taking place nonetheless – and this belief is particularly common among minority residents in the state. This gap between the actual conduct of the agency and citizen perceptions of the agency's actions must be addressed, and it is hoped that this report will serve as a firm foundation for undertaking the hard work that lies ahead to narrow this gap. This troublesome gap between actual conduct and perceptions of that conduct, if left unattended, could undermine the public trust in the Washington State Patrol that has long well served the agency and the people of the Evergreen State.

Introduction

Project Background/WSU Team Overview

WSU's *Traffic Stop Data Analysis Team* has been working with elements of the Washington State Patrol, both informally and formally, for the past year and a half on the issues of traffic stop *data collection* and *statistical analysis*, especially as those data apply to the question of racial profiling (biased policing). Team Members Gaffney and Lovrich initially attended WSP Traffic Stop Data Committee meetings as volunteer consultants. The participation of WSU was formalized by entry into a contract between WSU and WSP in mid-October of 2001. Immediately following the execution of that contract, WSU began working closely with WSP data managers and data entry personnel on issues relating to the collection and analysis of statewide traffic stop data. Initial issues arose with the form of the data files, the coding and labeling of the data, and the manner of data transmission to WSU; these issues were identified and largely overcome during the ensuing months. Lovrich worked directly with WSP personnel in Olympia on issues of data reliability, coding reliability and consistency, and of format. Several trial versions of the data were supplied to WSU as a part of this process, which facilitated the identification of the reliability, coding and labeling issues noted above.

During the same time period, Lovrich, Gaffney, and other members of the expanded WSU team continued to meet with the WSP Traffic Stop Data Committee to address a number of key concerns. Research issues which arose included: whether the WSP traffic stop data should be collected at the trooper (as opposed to detachment or APA) level, how confidentiality of troopers would be protected while information about their backgrounds was being made available for research purposes, how coding consistency and reliability would be maintained

over multiple updates, how the refinement of the "search" coding could be achieved, what training issues existed with the identification of a primary reason for contact on each observation, how an exploration of a *continuum of discretion* could be accomplished, how geographic differences in patrol focus and activity could be factored into the analysis of traffic stop data, and how some needed refinements in the agency's traffic stop report format could be accomplished.

In April of 2002 WSU received a provisionally "final" updated version of the WSP traffic stop data set containing observations for the period May 2000 through September 2001. A Preliminary Report was generated following the analysis of these data. Some coding reliability questions remained with this data set, but it was possible for WSU to proceed with more sophisticated analysis of this most recent data. Portions of this Preliminary Report are included in this Final Report. Additional data (through October, 2002) have been supplied to the WSU team, and these data reflect some of the changes in reporting and coding implemented as a result of the discussions referenced above.

During the months that the WSU team has worked with WSP personnel on traffic stop data issues, WSU researchers also explored the availability of other traffic stop or accident incident-related data coded for the gender, race and ethnicity of the vehicle operator. For example, WSP supplied "breathalyzer" data for all BAC tests conducted statewide by law enforcement agencies (WSP and all others) for calendar year 2001. Similarly, WSU researchers independently obtained "Fatal and Alcohol-related Accident" data for Washington for 1999, 2000 and 2001 with the assistance of Researcher Dick Doane and Research Director Phil Salzberg at the Washington Traffic Safety Commission.

WSU researchers conducted several detailed data analyses of the updated WSP traffic stop data. Based on their knowledge of the growing literature in the racial profiling field, the team of researchers brought together in the Division of Governmental Studies and Services explored various ways to examine the WSP Traffic Stop data, assessed various methods of analysis and comparison using other data sets, and ultimately developed a protocol or model which would allow the addition of pertinent contextual data into the analytical process.

The WSU Traffic Stop Data Team currently consists of the researchers named on the cover of this Report, together with selected graduate students on the Pullman, Vancouver and Spokane campuses of WSU. This team of scholars brings a wealth of methodological and analytical experience to the project, as well as a diversity of interests, backgrounds, and approaches. As will be evidenced in the discussion which follows, this diversity adds significantly to the depth and utility of the analysis which has been, and will continue to be, performed on WSP's traffic stop data.

Racial Profiling Background

Despite the hiatus following the events of September 11, 2001, and a new focus on homeland security, biased policing remains one of the most significant issues in American law enforcement today. The question of whether police intentionally target persons because of their race or ethnic background continues to be debated among law enforcement officials, civil rights groups, legislators/politicians, and ordinary citizens. Equally troubling in the eyes of many observers of American policing practices are aggressive police traffic stop (or stop and frisk) activities that may have a disparate impact on minorities, even if they are not intentionally discriminatory. More than 400 U.S. law enforcement agencies have instituted traffic stop data

collection measures, and at least 14 states have passed legislation mandating policies to eliminate racial profiling (McMahon, Garner, Davis, and Kraus, 2002). Similar legislation has been introduced or is pending in a number of other states. The U.S. Congress has considered, and likely will consider again, a proposed Traffic Stops Statistics Act that would mandate the collection of race-related traffic stop data by all state and local law enforcement agencies.

A few highly publicized cases (such as the agreement of the New Jersey State Police to operate under a Department of Justice consent decree) of confirmed racially-biased policing brought attention to this matter to the forefront of public concern before September 11th. This nationwide attention served to focus public and agency interest on the issue, in many cases with positive outcomes. The widespread call for a formal law enforcement response to the issue of biased policing caused many law enforcement agencies and individual police officers to re-examine the ways in which they deal with the public, particularly members of minority communities. Even in the absence of the collection of data on biased policing, many law enforcement agencies have adopted new, or refined existing, policies and training curricula to improve the quality of their contacts with all people, of whatever race or ethnicity. The steps taken early on by the Washington State Patrol, and the more recent efforts of the Washington Association of Sheriffs and Police Chiefs, the Spokane Police Department, the Seattle Police Department, the Vancouver Police Department, and the Pasco Police Department are good examples of this productive effort in the state of Washington.

Unfortunately, this enhance levels of public attention to the issue of biased policing has also had a pervasive negative effect. Many law enforcement agencies which are earnestly struggling with efforts to build trust and enhance communication and cooperation with the

citizens they serve have been painted with the broad brush of suspicion. The widely-held perception that **all** law enforcement agencies are guilty of racial profiling, which dissipated in the wake of the attacks of September 11, is now resurfacing in a major way. This development has served to greatly complicate the task of those agencies endeavoring to respond to the call for assurances that **they** are not engaged in racial profiling or biased policing.

One key problem with the public discussion over the issue of racial profiling is the lack of a clear and consistent definition of relevant terms. Until fairly recently, when discussing racial profiling law enforcement professionals and concerned citizens had in mind two very different issues – namely, legitimate criminal profiling and the application of racial bias in discretionary police decisions. Law enforcement officials will forcefully deny that discretionary decisions are made based on improper considerations of race or ethnicity, while acknowledging the occasional use of legitimate criminal profiling techniques. This is sometimes misconstrued as confirmation of "racial profiling" by citizens who perceive the existence of intentional application of racial bias in many ordinary contacts. Those perceptions are affirmed by each news account about racial profiling, and are further reinforced by published studies and reports which find evidence of racially disproportionate enforcement. Davis (2001) asserts that it is disagreement over the definition of racial profiling which leads to the "60/60 dichotomy" in which 60 percent of police chiefs claim that racial profiling is not occurring in their departments, while 60 percent of the general public say that it is.

Any program aimed at demonstrating that a particular law enforcement agency does not racially profile must recognize that this matter is deeply rooted in the larger question of trust. Effective crime control in a democracy requires voluntary cooperation between the police and

the citizenry. Citizen trust of police is crucial to modern policing; unfortunately, this trust is woefully low in some minority communities, and frighteningly easy to compromise. As Leitzel (2001:39) notes, the potential exists for the creation of a "pool of hostility," comprised of unpleasant police-citizen encounters in the aggregate[1]. This can lead to a parallel stereotyping of all law enforcement officials. Or, as Walker (1999:226-7) notes "to the extent that officers stereotype young African-American males as potential suspects, they may provoke higher rates of antagonistic behavior that, in turn, results in higher rates of arrest."

Even though African-Americans comprise only 13% of the U.S. population, they accounted for nearly 30% of the total 1998 arrests, along with accounting for nearly one third of all property crime arrests and approximately 40% of all violent crime arrests (Federal Bureau of Investigation, 1998). Hepburn (1978) found that prosecutors were more likely to decline prosecutions involving African-Americans than whites, suggesting that more blacks than whites were arrested under conditions that would not support formal prosecution. Examining data such as these, some scholars have argued that the disparate treatment of minorities is the result of systemic discrimination by the criminal justice system (Mann, 1993). Other scholars have found that race is usually not a factor in criminal justice processing and sentencing when all other legal variables (contextual factors) are taken into consideration and statistically controlled for in the analysis of race effects (Russell, 1998; Tonry, 1995, Wilbanks, 1987).

---

[1] The Police Executive Research Forum (Fridell, Lunney, Diamond, Kubu, Scott, and Lang, 2002) report on biased policing presents data from focus groups which elicited racial profiling stories from citizens. These stories made clear the multiplicative impact of negative incidents on citizens' trust in law enforcement, with many of the focus group participants expressing frustration because they perceived that law enforcement officials were denying the existence of racial profiling.

Long before racial profiling during traffic stops rose to the forefront of public concern, police-stop-and-frisk practices were a consistent source of friction between police and minority communities. As early as 1975, disproportionate stops of minorities were documented in San Diego, California (Boydstun, 1975). In recent years, the Christopher Commission (1991) found that the aggressive stop-and-frisk practices of the Los Angeles Police Department constituted a significant contributor to the pre-riot tensions between police and citizens in Los Angeles. According to a Gallup poll released as the nation prepared to celebrate the new millennium, 56% of Whites and over 70% of people of color in the United States expressed the belief that racial profiling by the police is a widespread practice. Perhaps even more significantly, 81% of the citizens taking part in the survey said they disapproved of the practice of racial profiling. Prominent recent events, such as the videotaped beating of Rodney King by LAPD officers, the abuse of Abner Louima and the death of Amadou Diallo, both in New York City, are commonly offered as compelling evidence indicating that minorities are unfairly targeted by American law enforcement. The more recent incident of Inglewood police and Los Angeles County Sheriff deputies, captured on video, slamming a young black man on the hood of a police vehicle and striking him in the face after he was handcuffed brought the issue back to center-stage for a time at the close of 2002. While it is true that the dynamics of public concerns surrounding racial profiling have changed somewhat as a consequence of the events of September 11th, the issue of biased policing will not disappear from the political landscape any time soon.

National "Profiling" Projects and Studies

Despite the perception among minorities of uneven treatment at the hands of police (Kennedy, 1997; Mann, 1993; Report of the National Advisory Commission, 1968), empirical

research on racial profiling remains quite limited. One of the most comprehensive and methodologically sophisticated studies on racial profiling examined the stop-and-frisk practices of the New York City Police Department over the period January 1998 through March 1999 (New York Attorney General's Office, 1999). Researchers in this study found that although blacks comprised only 25.6% of New York City's population, they accounted for 50.6% of all persons stopped by the NYPD. Hispanics were also over-represented among persons stopped (23.7% of the population; 33% of persons stopped), while whites were significantly underrepresented (43.4% of the population; 12.9% of persons stopped). Making use of Poisson Regression, the researchers controlled for the varying rates at which whites and minorities commit criminal offenses (as measured by arrests) and still found that blacks (23% more) and Hispanics (39% more) were stopped more frequently than whites across all categories of crime. Interestingly, minorities were stopped more often than whites on suspicion of committing a violent crime and less frequently than whites on suspicion of committing a property crime.

In December 1999, the San Jose P.D. released the results of an analysis that it conducted of traffic stops in that city from July through September 1999. In San Jose, Hispanics make up 31% of the city's population and accounted for 43% of the persons stopped by police during the study period. Blacks were stopped at slightly higher rates than their population would suggest (4.5% of the population; 7% of persons stopped), while whites (43% of the population; 29% of persons stopped) and Asians (21% of the population; 16% of persons stopped) were under-represented among motorists stopped. The San Jose P.D. explained the higher stop percentages among blacks and Hispanics by noting that more police officers are assigned on a per capita

basis to minority areas of the city (due to a greater volume of calls for service) as compared to predominantly white areas of the city (San Jose P.D., 1999).

As the result of litigation over the discriminatory traffic stop practices of New Jersey State Troopers, the State of New Jersey undertook a study of the stop and search activities of troopers in two State Police districts. Examining the stops that occurred from April 1997 through February 1999, and including most of 1996 and a few months from 1994, a New Jersey Attorney General's team found that 627 of the 87,489 traffic stops involved a vehicle search. Of those searches, 77.2% involved black or Hispanic motorists. During a similar time period, only 33.9% of the total traffic stops made in the two districts were of blacks and Hispanics (Interim Report of the State Police Review Team, 1999).

Similar search disparities were found by Lamberth (1997) in his study of the stop and search practices of the Maryland and New Jersey State Police. In a visual survey of traffic violators along the I-95 corridor through Maryland, Lamberth found that 17.5% of the speeding violators were black, while 74.7% of the violators were white. However, of the 823 motorists searched along I-95 from January 1995 through September 1996, 600 or 72.9% were black. In other words, blacks were being stopped and searched far more frequently than the rate at which they were speeding along the interstate highway.

Using municipal court records from the cities of Akron, Dayton, Toledo, and Columbus in the state of Ohio, Harris (1999) examined racial profiling activity among police in those jurisdictions. Comparing the court record violator rates of blacks and whites to their percentage in the Ohio driving population, Harris found that blacks were at least twice as likely as non-blacks to be ticketed by police. However, in a recent report released by the Florida Highway

Patrol, Florida troopers were found to have stopped whites, blacks, and Hispanics in the state of Florida at rates roughly equivalent to their percentages in the population. During the first four months of 2000, blacks constituted 15.7% of persons stopped and compared to 13.6% of the Florida population. Hispanics were somewhat over-represented among persons stopped, accounting for 17.9% of the stops but only 12% of the population. Whites were stopped at rates nearly identical to their overall percentage in the population (Florida Highway Patrol, 2000).

Most recently, a Vehicle Stop Study from the San Diego, California Police Department has become available for review (San Diego Police Department, 2000). Using census data for comparison purposes, the researchers in that study found that both African-Americans and Hispanics were over-represented among persons stopped, searched, and arrested by the San Diego Police. They point out, however, that because of San Diego's proximity to Mexico, census data on the driving-eligible population may not be accurate and may significantly under-represent the percentage of Hispanic drivers present in the San Diego area.

With the exception of the New York study, most of the existing research on racial profiling has been rather descriptive in nature and has been conducted by law enforcement agencies or interest groups. Although to varying degrees all of the studies referenced above found that minorities were stopped or searched in percentages greater than their population or involvement in crime or traffic violations would warrant, none of the studies was able to determine whether these differential stop and search rates were the result of differential treatment of minority citizens by white officers. Thus, the most pressing current issue in the public dialogue over “racial profiling” is, especially in light of the growing movement to collect data, the question of how to test for proportionality in police activities.

This is not a simple task, of course. Studying the comparison between population demographics and the rate of police stops for minority drivers is necessary, but hardly sufficient. Each individual encounter between citizen and police is based upon a multitude of factors – many of which have little to do with race or ethnicity. Looking only at race and ethnicity ignores this complexity. Any analysis which does not take this complexity into account will likely suggest some *apparent* disproportionalities. From a rigorous scientific research perspective, any valid approach to testing for disproportionality must attempt to capture as many of the major factors leading up to and underlying individual contacts between citizens and police as is practically possible. Thus, in order to test for the presence of race/ethnic bias in police discretionary decisions, nearly all other factors which might have a significant bearing on such decisions should be taken into proper account. Methodologically, to support a finding of racial profiling from an observed disparity in rates of stop, all other likely causes of this disparity must be eliminated. This process of elimination should include both general contextual information (patrol patterns, the demographics of drivers on that roadway, and such other considerations as suspect alerts) and incident-specific information such as the time of day, the location, the officer, and the subject of the stop or other police contact. This is a difficult, time-consuming and expensive proposition if done correctly. Only when reliable and comprehensive data are collected and independently analyzed and reported, however, will a publicly-accepted answer to the question of biased policing be possible.

Washington State Profiling Experience

The Washington State Patrol is in the forefront of data collection efforts and devoting proper attention to the issue of biased policing, and can point to a significant history of data

gathering, policy attention, and training focused on this issue. Other agencies within the state are beginning to join this movement as well. Two years ago the Washington Association of Sheriffs and Police Chiefs adopted a model policy against biased policing, and the association encouraged its adoption by agencies throughout the state. Many agencies have indeed adopted their own biased policing policies, and several agencies have begun the process of data collection. Given the enactment of **Engrossed Senate Bill 5852** by the Washington State Legislature in the 2002 session – which requires periodic reporting to the state legislature of progress toward the elimination racial profiling and encourages data collection and independent analysis – it is clear that the issue of biased policing will not "go away" in the Evergreen State, whatever may be the case elsewhere in the country. It will continue to be essential to provide accurate, concrete and independently analyzed information on self-initiated traffic stops with respect to rates of stopping, issuing citations to, and conducting searches on persons across racial and ethnic groups. This information is needed to ground a productive police-community dialogue about the phenomenon of biased policing resulting from inappropriate racial profiling, and to improve the degree of trust with which citizens view police agencies. The WSP's early start on this course places it in a position to serve as both a model agency and an invaluable resource for other law enforcement agencies wishing to undertake such efforts.

Theoretical Approaches to Biased Policing Research

The U.S. Department of Justice defines the term racial profiling to mean "any police-initiated action that relies on race, ethnicity, or national origin rather than the behavior of an individual or information that leads the police to a particular individual who has been identified as being, or having been, engaged in criminal activity" (Ramirez, McDevitt and Farrell, 2000:3).

This understanding of the term is mirrored in the Washington state legislature's definition: "Racial profiling is the illegal use of race or ethnicity as a factor in deciding to stop and question, take enforcement action, arrest, or search a person or vehicle with or without a legal basis under the United States Constitution or the Washington State Constitution." These legal definitions, and the practical recognition that the opportunity for biased policing arises most frequently in situations which call for the exercise of that *discretion* with which society vests law enforcement personnel, must drive any research into this question.

Evidence of racial profiling on the part of law enforcement agencies has largely been comprised of anecdotal information in the past, but by the end of the 1990s widespread concern over the issue led a number of jurisdictions to collect and analyze detailed quantitative data. As of March 2001, more than 400 law enforcement agencies in the United States reported collecting information on the race/ethnicity of those citizens stopped by police officers (Mosher, Miethe and Phillips, 2002). While virtually every extant study of such traffic stop data indicate that racial profiling **may** well be occurring, it is important to stress that these studies do not provide **proof** that biased policing exists. Without appropriate "denominator" data keyed to specific racial and ethnic populations, and without the addition of appropriate contextual information concerning traffic stops to multivariate analyses, it is not possible to distinguish biased policing from entirely appropriate, but demographically disproportionate, enforcement outcomes.

Studies of Racial Profiling

In recent years there has been a virtual explosion of media attention devoted to the issue of racial profiling by police agencies in the United States and other countries, including Britain (Dodd, 2003; Eboda, 2003) and Canada (Mosher, 1998; Papp and Duncanson, 2003; Shephard, 2003). It

is important to note, however, that while the **term** "racial profiling" is a recent innovation, the practice of biased policing and empirical research on this problem has much deeper historical roots. It is also important to note that racially-biased policing is just one aspect of the much larger issue of discrimination and prejudice against minorities in the United States that has been documented in numerous studies of other social institutions.

Attention to the issue of bias by the police in their dealings with minorities can be found in numerous historical and more recent studies, including: the Chicago Race Relations Commission Report (1922); Gunnar Myrdal's book An American Dilemma (1944); the Kerner Commission Report (1968), which examined the conditions associated with riots in several American cities in the 1960s; the Christopher Commission Report (1992) that examined events surrounding the beating of Rodney King by members of the Los Angeles Police Department; and in several other government reports and scholarly publications. Space does not permit a complete review of all the recent studies on racial profiling – however, it is worthwhile to highlight studies that have particular relevance to the analysis of WSP traffic stop data.

Although not specifically addressing the existence of racial profiling, at the national level the Police-Public Contact Survey involved a survey of approximately 90,000 individuals in 1999. The study revealed that 52% of all police to public contacts came as a result of traffic stops. This study also found that Blacks were 50% more likely than Whites to have experienced more than one stop, and that police were more than twice as likely to search African-American or Hispanic drivers as non-minority persons (U.S. Department of Justice, 2000).

In a study focusing on a particular section of Interstate Highway 95 in the state of Maryland, researchers recorded observations on close to 6,000 vehicles over a 42-hour period.

They reported that over 93% of the operators of these vehicles were violating traffic laws and were thus eligible to be stopped by the police. Of the violators seen by the observers, 17.5% were Black and 75% were White. However, 73% of the vehicles stopped by the state police were driven by Blacks, and 80% of the individuals searched were Black (Lamberth, 1997). This study of the Maryland State Patrol also found that half of the officers stopped more than 80% African-Americans; one officer stopped 95% African-Americans; and two officers stopped **only** African-Americans (as cited in Harris, 2002).

A study in the state of New Jersey, focusing on data from the years 1988 to 1991, found that Blacks comprised 13.5% of all drivers and 15% of speeding drivers on the New Jersey Turnpike. However, Blacks represented 35% of those stopped by the New Jersey State Patrol, and more than 73% of those arrested. A later study from the same state, analyzing traffic stop data from 1998 and 1999, indicated that people of color constituted more than 40% of the stops made on the New Jersey Turnpike. Although the overall proportion of those contacted who were searched by the police was relatively small, Blacks comprised more than 77% of those searched (as cited in Ramirez, McDeviitt, and Farrell, 2000).

Another study examined the New York Police Department's "stop-and-frisk" practices. This study found that while Blacks comprised approximately 26% of the city's population, they constituted 51% of all persons stopped by the police. Hispanics comprised 24% of the city's population, but 33% of the persons stopped. This study also determined that while the NYPD stopped 9.5 Blacks for every stop that resulted in an arrest, every 7.9 stops of Whites resulted in an arrest (New York Attorney General's Office, 1999).

A previously noted study in San Jose, California (analyzing data collected in 1999) found

that African-Americans and Hispanics were stopped by police at rates exceeding their respective percentages in the city's population. African-Americans comprised 5% of San Jose's population, but 7% of the vehicle stops; Hispanics were 31% of the city's population, but constituted 43% of stops. San Jose police officials observed that there were two primary reasons for the racial/ethnic disproportions in stops: (1) the percentage of officers per capita was higher in police districts that contained a higher proportion of minorities, and (2) socio-economic factors in minority neighborhoods resulted in more calls for service, and hence more interactions with the police (San Jose Police Department, 1999). These contextual explanations suggest the existence of a pronounced social-structural dimension to racial profiling—it is apparent that in order to properly analyze and draw conclusions from profiling data, detailed characteristics regarding the racial/ethnic and socio-economic composition of particular precincts/areas must be considered.

In Volusia County, Florida, observational data were collected through the use of video cameras mounted in police patrol cars. Although African-American and Hispanics comprised only 5% of the drivers on the county's section of Interstate 95, police videotapes showed that more than 70% of the drivers stopped by patrol officers were either African-American or Hispanic. This study also found that Hispanics were stopped for considerably longer periods of time than drivers of other racial and ethnic backgrounds (as cited in Harris, 2002).

Using municipal court records from the cities of Akron, Dayton, Toledo, and Columbus in the state of Ohio, Harris (1999) examined racial profiling activity among police in those jurisdictions. Comparing the court record violator rates of Blacks and Whites to their percentages in the Ohio driving population, Harris found that Blacks were at least twice as likely

to be ticketed by the police.

Smith and Petrocelli (2001) found that although Black drivers in Richmond, Virginia were stopped at rates exceeding their proportion in the driving-eligible population, they were not more likely to be searched than Whites who were detained by police on traffic patrol. This study also found that Blacks were less likely to be ticketed than Whites committing the same offenses. In Portland, Oregon, a study examining traffic stop data gathered between July and December of 2001 found that Portland P.D. officers stopped 210 African-Americans per 1,000 Portland residents of the same race, compared with 102 Whites per 1,000 White residents (Rose and Suo, 2002).

More specific to Washington State, a report released in August of 2000 found that while African-Americans represented approximately 9% of Seattle's driving age population, they received almost 17% of traffic citations issued in 1998 (Davila, 2002). This study also reported that Seattle P.D. officers were more likely to impound vehicles owned by Blacks than of any other racial or ethnic group in the city.

As noted, although these and other similar studies suggest that racial and ethnic disproportionality in law enforcement outcomes is occurring frequently, they do not provide definitive evidence of the occurrence of biased policing. As a report to the U.S. Department of Justice suggested, "The only way to move the discussions of racial profiling from rhetoric and accusation to a more rational dialogue about appropriate information strategies is to collect information that will either allay community concerns about the activities of the police or help communities ascertain the magnitude of the problem" (Ramirez, McDevitt, and Farrell, 2000).

Data Analysis Project

The Washington State Patrol has been conducting internal data analysis on traffic stop data since the inception of its data collection activities in 2000. That analysis has been consistently rigorous and well-designed, has yielded interesting and informative results, and has formed the basis of both training and policy responses on the part of the agency. The WSU team was invited to participate in the WSP Traffic Stop Data Committee meetings and witness the agency's analytical process, and it was invited to supplement and build upon that foundation. To this end, the WSU team has worked to bring additional analytical approaches and new sources of data into the analytical process, particularly in the two realms of contextual or "denominator" evidence and more sophisticated statistical techniques. This effort has resulted in several distinct areas of inquiry, as will be more fully discussed below. These areas include inquiry into the relationship between ethnicity and enforcement activity at the APA (Autonomous Patrol Area) level, the testing of the relationship between race/ethnicity and search activity, and the comparison of rates of enforcement activity to other "baseline" data which provide better context or "denominator" information about drivers than do Washington State demographic data.

Weaknesses in Extant Studies of Racial Profiling—Challenges in Collecting and Analyzing Racial Profiling Data

As noted above, although studies suggest that racial and ethnic disproportionality in law enforcement contacts and outcomes is occurring, they do not provide definitive evidence of the existence of biased policing. Several reviews of previous studies of racial profiling in traffic stops have emphasized the methodological weaknesses in these studies and offered suggestions for improvement. The key issues relate to: (1) the collection of data and potential problems

related to "de-policing"; (2) the appropriate "denominator" to use in determining whether racial profiling is occurring; (3) what types of stop incident data to collect and how to analyze the data.

As McMahon et al. (2002) note, the collection of data on racial profiling itself is symbolic because it constitutes a gesture of openness to the community, translating to "we have nothing to hide," and represents the willingness of law enforcement to take an introspective look to prevent disparate treatment of minorities. Similarly, Fridell et al., (2002) note that by collecting and analyzing data, law enforcement agencies can advance the debate on biased policing from anecdotal cases to empirical evidence, and implement responses based on the results. Data collection can allow departments to identify potential policies or practices that result in racially biased policing, and use the data to stimulate further inquiry into whether particular officers' practices are racially biased. Fridell et al. (2002) also note that the data collected through such research can also be beneficial to law enforcement agencies beyond the mere examination of potential racial bias. By learning about the quality and quantity of stops made by their personnel, agencies are better able to manage and allocate departmental resources. In this context, it is notable that the National Organization of Black Law Enforcement Officers (NOBLE), the International Association of Chiefs of Police, the Police Executive Research Forum, the National Black Police Association, the Hispanic-American Command Police Officers Association, and the National Alliance of Minority Law Enforcement Agencies have all denounced racial profiling and underlined the value of racially coded traffic stop data collection (McMahon et al., 2002).

However, there are indications that as a result of allegations of racial profiling and the

collection of data on this issue, disengagement may be occurring in some jurisdictions. For example, in Cincinnati, Ohio, three months after riots related to alleged discriminatory practices on the part of police occurred, the Los Angeles Times reported that "some officers openly admit to slacking off their jobs for fear that aggressive patrol work will send this tense city aflame once more" (Simon, 2001). When the City of Houston required its law enforcement officers to collect data on the race of those they contacted, there was "[an immediate] drastic reduction in the number of traffic citations written" (Ward, 2002). Officers in that city reportedly wrote fewer tickets because they were concerned that the "information collected could be used to single them out for punishment." At least partially as a result of the implementation of data collection programs, the number of stops and citations by state patrol officers also decreased in the states of North Carolina and Connecticut (Ward, 2002). Similarly, when the mayor and police chief of Minneapolis accused officers in that city of racial profiling, traffic stops declined by 63% (as cited in MacDonald, 2001). In the state of Washington, the Seattle Times noted that police in Seattle were engaging in "de-policing, selective disengagement [and] tactical detachment ... [as a] logical reaction to chronic charges of police racism (Tizon and Forgrave, 2001). More recently, when a King County Deputy Sheriff was killed by a black male, there were allegations that due to concerns about being accused of profiling, the deputy had been inhibited from using force (Ho and Barber, 2002).

The potential for de-policing as a result of the collection of data on racial profiling is related to the issue of the collection of officer identifier information – some would argue that such data should not be collected in order to ensure that disengagement does not occur. However, the Police Executive Research Forum Report (Fridell et al., 2002) recommends the

collection of such information because "whether it is, in fact, 'just a few' or, instead, a large number of officers, a data collection system that is implemented with the true intent of assessing and responding to racially biased policing should have the capacity to identify potentially problematic officers." Such information can be utilized as only one aspect of an "early warning system" (Walker, 2001). It is important to note, as discussed below, that there is no evidence that the collection of officer identifier information in the Washington State Patrol data has led to de-policing or disengagement. To the contrary – in the past year contacts and enforcement activities have increased throughout the Patrol by over 25%. Of equal interest is a corresponding decline in the number of citizen complaints filed against troopers during the same time period.

A second important methodological issue is that of how data on traffic stops can be compared with an appropriate measure of the larger population of a jurisdiction – that is, the identification of appropriate "base rates" or "benchmarks" (Engel, Calnon, and Bernard, 2002) for comparison, or what Walker (2000) refers to as the "denominator problem." The vast majority of extant studies have relied on simple comparisons of the race/ethnicity of those stopped with the relative representation of racial/ethnic groups in the population of the jurisdiction. Although some of the analyses presented in this report will employ this preliminary strategy, it is important to note that simple comparisons of those stopped to population demographics in and of themselves are not sufficient for demonstrating the presence or absence of biased policing. Davis (2001:5) goes as far to suggest that "not only is this practice inaccurate, it is outright irresponsible, and it contributes to negative perceptions in the community." Ideally, data would be collected and analyzed on racial/ethnic differences in the number of miles driven, the times of day people drive, the areas in which they drive, and the

types of vehicles they drive.

For traffic stops, some researchers have defended the use of population comparisons by suggesting that research does not indicate that minorities violate traffic laws more often or to a more serious degree than do Whites. However, evidence suggests that there are noteworthy differences in driving behavior, and similar differences in compliance with safety legislation across racial/ethnic groups in the U.S. For example, one recent study found that African-Americans have seatbelt noncompliance rates that are on the order of three times higher than any other race or ethnicity (as cited in Davis, 2001; see also Ellis, Nelson, Cosby, and Morgan, 2000). Similarly, a field observation study of approximately 3,000 drivers by the Colorado Department of Transportation estimated that approximately 46% of African-American males in Denver wore seatbelts, compared with an overall rate of 60% (as cited in Medina, 2000). Similar observation studies of seatbelt and child safety seat usage conducted in the past two years in Washington confirm that this ratio holds true in this state, as well. The National Highway Traffic Safety Administration found that while Blacks constituted 10 percent of drivers nationally, they were 13 percent of drivers involved in fatal accidents, and 16 percent of drivers involved in injury accidents (as cited in MacDonald, 2001). Another recent study conducted in the state of New Jersey found that black drivers in that state tended to engage in speeding more often than drivers of other racial/ethnic backgrounds (Kocieniewski, 2002). Engel et al. (2002) also note that one cannot dismiss the possibility that particular types of citizens (in particular, younger minority males) drive more aggressively and are more likely to violate traffic laws and/or commit more serious violations.

Some recent analyses have attempted to address this denominator problem. For example,

the San Jose P.D. compared traffic stop data with official crime data – the logic being that official arrest data are an acceptable surrogate for participation in criminal activity, and therefore constitute a valid indicator of the risk of a traffic stop or other enforcement intervention by police authorities (Walker, 2001). Part of the problem with this strategy, however, is that the use of official crime data as a comparison could constitute something of a self-fulfilling prophecy – that is, arrests of minorities as revealed in the Uniform Crime Reports could themselves be the result of discriminatory enforcement practices.

Smith and Alpert (2002) suggest that the most promising approach for developing a reliable comparison population in research on racial profiling involving traffic stops is direct observation of the driving public in order to identify the population available for stops and searches. They also indicate that information on racial/ethnic differences in traffic violators needs to be collected. However, Smith and Alpert (2002) further note that researchers will generally have to limit their observations of racial/ethnic groups to "Black, White, or Unknown," due to the speed of vehicles being observed, lighting conditions, and the practical limits of human observation. An additional problem with such observational data is that they allow for assessments of only certain types of traffic violations (e.g., speeding or red light violations) that may not generalize to all traffic violations (Fridell et al., 2002). Given the racial/ethnic composition of Washington State's population (i.e., a relatively high proportion of Hispanics, Native Americans, and Asians) and given resource limitations, our study does not use observational data to establish baselines.

As the PERF Report (Fridell et al., 2002) notes, another group against which contact demographics can be compared are individuals who have been involved in vehicle accidents.

While it is true that people who have accidents do not necessarily accurately represent individuals who are at risk of being stopped for traffic violations or for investigatory reasons (e.g., some people are involved in accidents through no fault of their own and some very poor drivers may never get into accidents), a major advantage of this comparison information over census data is that it is a potential measure of poor driving behavior. The analyses presented below use involvement in accidents as one standard of comparison.

Finally, there are issues surrounding the type of data to collect in racial profiling studies, and how it should be collected. A key issue here relates to how the race/ethnicity of the person contact should be measured. The Ramirez et al. (2000) report to the National Institute of Justice recommends the procedure of using the police officer's personal perception of the vehicle operator as the measure of the race/ethnicity of those individuals who are stopped in the traffic enforcement setting. The PERF Report (Fridell et al., 2002:129) supports this procedure, noting: "To the extent that officers make contact and enforcement decisions based on race/ethnicity, they do so based on their own perceptions of race/ethnicity, not on the basis of the driver's license or other information that they have not yet seen. That these perceptions of race are erroneous in some unknown number of incidents does not negate the fact that the perceptions of race are the valid measure of race in light of the particular research question." However, recognizing the possibility of inaccuracies in the coding of race/ethnicity through this method, Ramirez et al. (2000) suggest that police agencies should implement measures for cross-checking the reliability of race/ethnicity designations in traffic stop data through periodic monitoring. The data analyzed for this report of the Washington State Patrol rely on officer identification as the indicator of the race/ethnicity of those contacted, and we plan additional studies to monitor the reliability of this

coding through a quota-based follow-up survey of drivers who are the subject of a Washington State Patrol contact.

It is also important to note that situational characteristics, including individual drivers' characteristics (e.g., sex, age, level of intoxication, and demeanor) and characteristics of the specific police-citizen encounter (e.g., location, time of day, and presence of bystanders or other officers), as well as vehicle characteristics (age, general state of repair) and passengers (number, demeanor) can affect police behavior (Engel et al., 2002). Perhaps most important here, and most neglected in the extant profiling studies, are the "legal" characteristics (driver's record, type and number of offenses) prior to and during traffic stops. Research has consistently found that officers' discretion is influenced by the seriousness of the offense and the amount and strength of evidence available (Klinger, 1996). In the context of traffic stops, officer discretion to issue a citation and perhaps search an individual or their vehicle will also be affected by the number and types(s) of violation(s) committed by the individual, and, if available, information on their prior record of traffic violations or criminal history. Although the data we use in the analyses below do not allow us to consider the individual's prior record of traffic violations or criminal history, we are able to take into account the number of current violation(s) and the seriousness of violation(s), both of which have strong effects on enforcement activity.

Different studies of racial profiling have also focused on a variety of dependent variables. Engel et al. (2002) note that eight of the 13 racial profiling studies they reviewed collected and analyzed data on initial stops and specific dispositions subsequent to the stops; other studies have focused on arrest dispositions and searches. Davis (2001) suggests that analyses should examine the duration of the stop, the disposition of the stop, whether a search was conducted and the basis

of the search, and whether contraband was discovered as a result of the search. The analyses in this report address all of these issues, with the exception of data on the duration of the stop, which were not available for our analysis.

Washington State Patrol

In the year 2000, the Washington State Legislature passed a law requiring the State Patrol to collect and report semi-annually on "the number of individuals stopped for routine traffic enforcement" (Washington State Patrol, 2000). Among the elements to be included in the data collection were the race/ethnicity, gender, and approximate age of the individual stopped; the nature of the alleged violation that led to the stop; whether a search was instituted as a result of the stop; whether the search resulted in the discovery of contraband; and whether a citation was issued as a result of the stop.

The data analyzed for the first part of this report cover every stop made by members of the State Patrol from May of 2000 to October of 2002, representing a total of approximately 2 million cases. Various sections of the analysis, however, cover more restricted data, such as contacts initiated by WSP officials (approximately 1.3 million cases) in the case of aggregate and APA citation analyses, and only contacts between February and October 2002 in the Search analysis. The variables in the data set include the date and time of the stop; eight fields indicating the type of observed violation(s) of the person contacted; eight fields indicating whether a written or verbal warning or citation was issued for each observed violation; the highway number and mile post of the stop; the sex, age, and race/ethnicity of the driver; the sex, race/ethnicity, rank, and months of experience of the WSP officer; whether there was a search of the vehicle, and whether or not contraband was discovered as a result of the search; an individual

officer number, allowing for officers to be identified (although not by name); and the patrol area and district to which the officer was assigned at the time of the traffic stop.

"Denominator" Analysis

One of the greatest problems associated with the analysis of traffic stop data is a problem that Samuel Walker (2000) and others have referred to as the "denominator problem." This label defines the difficult question of *to what base* the observed rates of stop and enforcement activity may be compared in order to either confirm or disconfirm the presence of bias in a finding of disproportionate impact. The large majority of the extant studies on racial profiling have relied on simple comparisons of the race/ethnicity of those stopped with the relative representation of racial/ethnic groups in the population of the jurisdiction. Although the preliminary analyses of the Washington State Patrol data have similarly used this as one analytical strategy, it is important to note that simple comparisons of the race/ethnicity of those stopped to population demographics are not sufficient to demonstrate the presence or absence of biased policing. Davis (2001:5) goes so far as to suggest that "not only is this practice inaccurate, it is outright irresponsible, and it contributes to negative perceptions in the community." Ideally, data would be collected and analyzed on racial/ethnic differences in the number of miles driven, the times people drive, the areas in which they drive, and the types of vehicles being driven.

Some recent analyses have attempted to address this denominator problem. Crime data, calls for service, cases of hospital admissions reported for drug and alcohol related health conditions, number of offender under community supervision, and several other such *indirect measures* of illegal and/or dangerous activity are being viewed as appropriate dimensions of the "denominator problem" by university-based researchers and police agency research offices.

Further, recent evidence suggests that there are noteworthy differences in driving behavior, and similar significant differences in safety practices across racial/ethnic groups in the United States. For example, one recent study found that African-Americans demonstrate *seatbelt noncompliance* rates that are on the order of three times higher for any other race or ethnicity (as cited in Davis, 2001). This phenomenon has been recently confirmed in the state of Washington by observation studies on the use of child seats (2001) and booster seats (2002), which yielded the following comparisons across racial/ethnic groups:

Race or Ethnicity	***Child Seat Usage, 2001***	***Booster Seat Usage, 2002***
Caucasian	52%	49.9%
Hispanic	32.6%	27.9%
African American	N/A	54.4%
Pacific Islander	N/A	61.5%
Asian	N/A	62.3%
Native American	34.9%	40.3%

Another recent study conducted in the state of New Jersey found that black drivers resident in that state tended to engage in speeding more often than drivers of other racial/ethnic backgrounds (Kocieniewski, 2002).

The WSU team made several preliminary comparisons between observed WSP activity and other contextual data, in addition to using comparisons internal to the WSP traffic stop data to explore the same relationships. **None of the analytical work performed to date shows any**

significant bias in stopping decisions. In addition, analyses of contextual data performed to date indicate that systematic disproportionate enforcement (biased policing) is not taking place within the Washington State Patrol. Several specific initial observations in this vein are set forth below:

Comparisons of the rate at which the three principal types of enforcement action captured by the WSP Traffic Stop data are made indicate that, while there are some differences across racial/ethnic groups, these differences are uniformly small in magnitude. Addressing only three of the racial/ethnic categories below with regard to rates of citation, the issuance of a written warning, and the provision of a verbal warning upon being stopped by a WSP trooper clearly illustrate these observations:

Enforcement Action	*White Drivers*	*Black Drivers*	*Nat. Amer. Drivers*
Citation	82.1%	4.0%	0.6%
Written Warning	87.1%	2.5%	0.3%
Verbal Warning	84.6%	3.6%	0.8%

[Note: Table entries represent % of all stopped drivers in these racial groups]

If anything, this comparison of rates of enforcement activity would seem to indicate a bias against Whites in the second, written warning, enforcement action category.

At a broader level, comparisons of rate of contact for the various racial and ethnic groups within the WSP data set would seem to confirm the absence of racially biased enforcement activity. The WSP traffic stop data contain records of eleven different types of traffic stop. If there were a pattern of biased enforcement within the Patrol, the rates of contact across these types of contact would likely differ significantly. On the contrary, the largest difference occurs for commercial inspections. Those comparisons are set out below:

Type of Contact	*Percent White/Black*
Trooper-Initiated	84.0/3.7
Calls for Service	83.1/4.1
Weighing Operations	84.1/2.7
Collision	81.5/3.7
Collision Follow-up	80.6/3.9
Other Follow-up	80.7/5.5
Aggressive Driving	81.8/4.8
Road Rage	83.7/4.5
Emphasis Patrols	85.9/3.3
Commercial Inspections	88.3/2.6
Physical Assist	82.4/5.1

Again, this analysis represents only a portion of the WSP traffic stop data, but it does provide clear impetus for further, more detailed, analysis. Comparison between trooper-initiated stops – which theoretically would account for most of any biased enforcement – to collisions or physical assists reported in the WSP data would again appear to disconfirm the existence of the practice of biased enforcement within the Patrol. We turn next to another assessment of potential biased policing by the WSP in traffic stop-related decisions beyond the TARS report – namely, in racially coded data collected in taking BAC evidence.

Breath Test Data Comparisons

These data will have significant utility in additional, more-refined analysis of the WSP Traffic Stop data. This data set reflects the gender and race (although not on the same coding scheme as the WSP data) of each individual asked to complete a blood alcohol test done (by machine) within the state (by all agencies). When the statewide breathalyzer data are examined, further useful comparisons arise. These comparisons are hampered somewhat by the difference in racial coding between the BAC and traffic stop data sets, but some

worthwhile comparisons can still be made. Of interest in this case is the rate at which different racial categories are "offered" the opportunity to take a machine breath test:

Racial Category	*Percent of Total Tested*
White	88
Black	4.7
Native American	3.1
"Unknown" (includes Hispanic)	1.8
Asian	2.5

Clearly, some utility is lost by the categorization of race in this data set. However, observation of the ratios between whites and others are remarkably similar to those ratios reported by the WSP in its traffic stop data analyses, again seemingly offering support for the proposition that biased enforcement is not a common occurrence in the WSP.

Further examination of these data yield, however, a slightly contrary observation which will merit further study. When a comparison is made between those who tested below the legal limit (0.08% BAC) and those who tested above that legal standard, a small disproportionality in the statewide data for the WSP appears:

Percent Who Tested:	Whites	Blacks	Native Americans	Unknown	Asian
Below 0.08	84.2	6.1	3.1	3.2	3.5
Above 0.08	88.6	4.5	3.1	1.6	2.3

As in the other observations, these are relatively small differences, but the difference in rate for testing below 0.08 BAC for Blacks is certainly a clear basis for additional inquiry. It should be noted that the rate at which this phenomenon is observed for other agencies is significantly higher:

Ethnic Group	WSP or All Others	**Rate of Testing**	**Rate of Below .08 BAC**	WSP Difference
"A" Asian	WSP	*350/13414* 2.6%	*126/350* 36.0%	-9.3%
	Others	*688/26,503* 2.6%	*312/688* 45.3%	
"B" Black	WSP	*727* 5.4%	*268/727* 36.9%	-5.9%
	Others	*1214* 4.6%	*519/1214* 42.8%	
"I" Native American	WSP	*273* 2.0%	*109/273* 39.9%	-1.8%
	Others	*1096* 4.1%	*457/1096* 41.7%	
"U" Unknown (Includes Hispanic)	WSP	*281* 2.1%	*98/281* 34.9%	-13.8%
	Others	*427* 1.6%	*208/427* 48.7%	
"W" White	WSP	*11,783* 87.8%	3*801/11,783* 32.3%	-2.9%
	Others	*23,078* 87.1%	*8125/23,078* 35.2%	

Fatal and Alcohol-Related Accident Data Comparisons

A preliminary evaluation of the Fatal and Alcohol Related accident data for the years 1999, 200 and 2001 confirms its utility in this process as well. These data capture information on drivers, passengers, vehicles, and circumstances for each such accident in Washington. The FARS datasets are maintained by the **Washington Traffic Safety Commission**. Since 1999, the FARS data (collected nationwide) has been coded for race and ethnicity. At this point in time, FARS data for the state of Washington for 1999, 2000 and 2001 are available for analysis. In the near future, FARS data for 2002 will be available to supplement the findings reported here.

The following table sets forth findings for individuals who lost their lives as a result of a fatal traffic accident in the state of Washington in calendar years 1999, 2000 and 2001. The

portion of these traffic fatalities wherein the person in question was not wearing a seatbelt is reported for Whites (non-Hispanic), Hispanics, Native Americans, and Blacks.

	Non-Hispanic Whites	Native Hispanics	Americans	Blacks
	Unbelted / *All Fatalities*	*Unbelted* / *All Fatalities*	*Unbelted* / *All Fatalities*	*Unbelted* / *All Fatalities*
1999	267/504 53%	41/66 62%	14/19 74%	15/20 75%
2000	263/487 54%	45/65 69%	18/23 78%	4/11 36%
2001	306/560 55%	60/81 74%	18/24 75%	12/22 55%

The figures displayed in this table clearly confirm that the rate of use of seatbelts very likely differs significantly across ethnic groups resident in the Evergreen State. If it can be assumed that all drivers have an equal chance of being involved in a fatal car crash regardless of race or ethnicity, then any differences in the rate of seatbelt use among fatalities grouped by ethnicity should provide an indirect indicator of rate of violation of state seatbelt laws across ethnic groups. From the 1999, 2000 and 2001 FARS data it would appear that **Hispanics** and **Native Americans** are substantially less likely to be using their seatbelts than are non-Hispanic Whites. These findings are important with respect to disparate rates of citation for seatbelt violations for Hispanic and Native America drivers, and as will be noted in multivariate analyses of citation issuance the number of violations observed on the part of the officer constitutes as significant factor in her or his decision to issue a citation.

WSP Traffic Stop Data Analysis Results

The overwhelming majority of recent analyses of racial profiling/biased policing simply split the population into White/Non-White, and engage in the making of comparisons across these broad groups. Such analyses often conceal important differences in policing outcomes across diverse racial/ethnic groups. While Washington state has a relatively low percentage of African-Americans compared to other states, it does have relatively high proportions of Native-American, Asian, and Hispanic residents[2]. Our analyses presented below thus examine traffic stop contacts and the outcomes of those contacts with respect to each of these racial/ethnic groups individually.

Most extant analyses of racial profiling/biased policing analyze data at the level of an entire city or state, a practice which can serve to conceal important contextual differences in law enforcement across smaller geographic areas. Where the WSP traffic stop data permit, we overcome this serious problem by presenting analyses at the level of the 40 "autonomous patrol areas" (APAs) of the state patrol[3].

---

[2] Additional racial/ethnic categories existed for Pacific Islanders, East Indians, and "Other." However, due to the relatively small number of cases for individuals in these groups in a number of autonomous patrol areas, we restrict our analyses to the four racial/ethnic groups mentioned above.

[3] A 40th autonomous patrol area was added in 2002; most multivariate analyzes were conducted with 39 APAs. For consistency sake, the tables list 40 APAs and the text refers to 40 APAs throughout.

Section One – Stop Level Analysis

a. Population Comparisons

Table 1 presents findings on the difference between the percentage representation of the population[4] and percentage of stops, by race/ethnicity for the 40 autonomous patrol areas of the Washington State Patrol. As noted above, census-based race and ethnicity population data are not the ideal denominators in analyses of traffic stop data; there are likely to be differences in driving patterns and the types/conditions of vehicles across racial and ethnic groups that may have an impact on who is contacted by policies in traffic stops. In addition, particularly with respect to the Hispanic population in Washington State, census figures may seriously underestimate the total resident population due to the presence of migrant workers and undocumented immigrants[5]. It is also important to note that certain areas of the state (particularly the Interstate-5 corridor from the Canadian border to the Oregon border) patrolled by the WSP have a high proportion of out-of-state drivers, and it is possible that these drivers are more likely to be members of racial/ethnic minority groups than resident, in-state drivers.

Given these caveats, our comparisons of the race/ethnicity of those contacted by the

---

[4] For a description of how census data on race/ethnicity were overlaid to the autonomous patrol areas, see Appendix One.

[5] In the year 2000, there were an estimated 184,236 migrant and seasonal farm workers in Washington State, the majority of whom were Hispanic males (*Fact Sheet on Washington Farmworkers, 2001*). In addition, the Immigration and Naturalization Service estimated that undocumented immigrants accounted for up to 40 percent of Washington's agricultural workforce in 1997. These individuals are concentrated in Yakima, Okanogan, and Chelan counties, and to a lesser extent in Benton, Douglas, Franklin, Grant, and Skagit counties (*Fact Sheet on Washington Farmworkers,* 2001).

Washington State Patrol to census data reveal that while Whites constitute 81.8% of the state's population, they comprise 83.9% of self-initiated contacts by WSP officials. Blacks, who constitute 3.2% of the state's population, represent 3.7% of those contacted by the state patrol. Native-Americans, who comprise 1.6% of the state population, constitute 0.7% of those contacted by the state patrol. Asians, who are 5.5% of the state population, are 3.2% of those stopped by the state patrol. Hispanics, who constitute 7.5% of the state population, comprise 6.5% of those contacted by the state patrol. Based on these comparisons to statewide census data, there is clearly little racial/ethnic disproportionality in statewide contact (traffic stop) figures. **The importance of this initial finding cannot be over-emphasized. In nearly all other reported studies, significant disproportionalities have been observed at the initial contact level of analysis. The finding that virtually no such disparities exist at the statewide level is very significant, and reflects well on the policies and practices of the Patrol.**

As mentioned, aggregating the data to the level of the entire state could theoretically conceal potentially important differences in the race/ethnicity of those contacted in individual state patrol autonomous areas. We thus overlaid census data on the proportion of Blacks, Native-Americans, Asians, and Hispanics in each autonomous patrol area[6], and subtracted the proportion of those contacted from this figure (see Table One). We adopt the criterion used in several other studies of racial profiling/biased policing that differences are not substantively significant as long as the percentage of those contacted in any particular racial/ethnic group is not more than five percentage points larger than the percentage of that group in the resident

---

[6] See Appendix One for a detailed description of the method used to overlay county census information to autonomous patrol areas of the Washington State Patrol.

population (see McMahon et al., 2002). Based on this criterion, we find that **Blacks are over-represented in contacts compared to their proportion in the resident population in only two of the 40 autonomous patrol areas (Tacoma Freeway and Seattle South). Native-Americans are not over-represented in any of the 40 autonomous patrol areas, and are under-represented in two of these areas (Colville and Okanogan County). Asians are not over-represented in any of the 40 autonomous patrol areas, and are substantially under-represented in three APAs (Valley (King County), North Bend, and Enumclaw). Hispanics are over-represented in only one of the 39 APAs (Sunnyside), and are substantially under-represented, relative to their proportion of the resident population, in five APAs (Yakima, Ephrata, Moses Lake, Everett Central, and Everett East[7])**.

Based on these comparisons of population to contacts, there is no indication that the Washington State Patrol is engaged in racial profiling at the level of initial contact. Again, the significance of this finding in the context of other published studies bears reinforcement. ***The Washington State Patrol is one of only a very few agencies so far studied which does not exhibit a pattern of disproportionality at the stop level.***

---

[7] The figures for Ephrata and Moses Lake should be treated with caution, as census data were quite difficult to overlay for these two APAs.

Table 1—Contacts by Race/Ethnicity and Autonomous Patrol Area
(Percent Contacted minus Representation in Population)

	Black	Native	Asian	Hispanic	N
Statewide	+.05	0.9	2.3	1.0	1,343,071
APA					
1- Gig Harbor	-3.5	-1.1	-2.1	-2.3	15,107
2 - Tacoma Freeway	+5.2	-1.0	+0.7	-0.4	52,991
3 - East Pierce County	-0.9	-1.1	-2.2	-2.1	49,752
4 - Thurston County	+1.6	-0.9	-0.7	-0.4	42,719
5 - Seattle North	+3.2	-0.7	+0.9	+0.2	30,990
6 - Seattle South	+9.1	-0.6	-2.0	+1.5	42,000
7 - Seattle East	+0.4	-0.7	-2.7	-0.2	59,069
8 - Valley (King County)	+2.4	-0.6	-5.0	-0.5	37,688
9 - North Bend	-3.0	-0.5	-8.3	-0.7	34,745
10 - Enumclaw	-4.6	+0.3	-9.0	-3.0	8,037
11 - Yakima	+0.5	+0.4	-0.1	-8.8	48,570
12 - Sunnyside	+0.1	-2.6	-0.2	+9.8	19,034
13 - Kennewick	+1.7	-0.7	-0.5	-1.4	48,578
14 - Walla Walla	-0.2	-0.4	-0.3	-1.1	28,450
15 - Colville	+0.5	-6.3	-0.1	-1.5	17,121
16 - Ritzville	+2.3	-1.0	+1.8	+2.0	12,591
18 - North Spokane	+0.8	-1.5	0.0	-1.6	24,523
19 - Spokane Valley	+0.6	-0.4	-0.8	-1.4	54,475
20 - Colfax	+0.8	-0.3	-3.0	-1.9	13,995
21 - Vancouver	+1.4	-0.3	-0.3	-0.5	48,559
22 - Goldendale	+0.4	-1.3	+0.5	+0.5	16,166
23 - Kelso	+2.6	-1.3	+2.2	-0.1	34,601
24 - Chehalis	+1.7	-1.0	-0.2	-0.7	25,746
25 - Wenatchee	+0.3	-0.5	+0.1	-4.8	38,723
26 - Ellensburg	+1.7	-0.3	+0.1	+0.8	41,282
27 - Okanogan County	+0.2	-8.3	+0.1	-3.2	25,720
28 - Ephrata	+1.1	+0.9	+0.5	-15.4	18,018
29 - Moses Lake	+1.0	-0.8	+0.7	-11.3	15,463
30 - Bellingham	+1.5	-0.7	+2.3	-1.3	32,476
31 - Mount Vernon	+1.3	-1.3	+1.5	-5.2	32,556
32 - Oak Harbor	+1.4	-0.6	+1.3	-1.1	24,039
33 - Everett Central	+1.8	-1.4	-0.1	-6.9	105,712
34 - Everett East	-0.4	-1.8	-4.1	-8.0	34,379
35 - Forks, Port Angeles	+0.3	-3.9	+0.6	-1.3	37,595
36 - Bremerton	+1.8	-1.2	-1.8	-1.6	93,437
37 - Hoquiam	+1.2	-3.6	-0.5	-1.1	28,896
38 - Shelton	-0.2	-2.0	-0.1	+0.7	11,218
39 - Raymond	-0.3	-2.1	-0.6	-1.6	23,020
40 - Morton	-0.1	-0.9	+0.3	-1.8	15,030

b. Involvement in accidents

Table 2 compares contacts with the Washington State Patrol to involvement in accidents (as recorded in state patrol contacts) by race/ethnicity for the 40 state patrol APAs. While African-Americans are over-represented in traffic stop contacts, relative to their involvement in accidents, in 24 of the 40 autonomous patrol areas most of the percentage differences are quite small and not substantively significant. Only in APA 6 (Seattle South) is the percentage of Blacks contacted by the state patrol five percent higher than their rate of involvement in traffic accidents occurring in that area. Native-Americans are slightly over-represented in contacts compared to their involvement in accidents in 13 of the 40 APAs, but no single APA shows a difference of greater than 1 percent. Asians are over-represented in 12 of 39 APAs, but only two of these have differences of 1.0 percent between the percentage of Asians contacted and their rate of involvement in traffic accidents occurring in that area. Finally, Hispanics are over-represented in seven of the 40 areas (none of which approach a percentage difference of five), and they are substantially under-represented in contacts, relative to their involvement in traffic accidents occurring in the area, in four autonomous patrol areas (Kennewick, Goldendale, Ephrata, and Moses Lake).

Table 2—Contacts by Race/Ethnicity and Autonomous Patrol Area
Percent Contacted minus Percent Involved in Accidents

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	-1.8	0.0	-0.1	-1.3	-0.3
2 - Tacoma Freeway	+1.3	-2.6	-0.1	+0.8	+0.2
3 - East Pierce Cty.	+0.9	+0.2	+0.1	-0.7	-0.6
4 - Thurston Cty.	+0.2	-1.4	+0.5	-0.5	-0.1
5 - Seattle North	+3.1	+3.2	+0.1	+0.2	+0.5
6 - Seattle South	-3.2	+5.2	+0.1	+2.3	-0.1
7 - Seattle East	-0.2	+1.4	0.0	-1.4	+0.4
8 - Valley (King Cty)	+1.2	+1.9	0.0	-1.4	-1.0
9 - North Bend	+2.8	+0.4	+0.1	-1.5	-3.6
10 - Enumclaw	+1.5	-0.7	+0.1	0.0	-0.7
11 - Yakima	+1.7	+0.3	+0.2	+0.2	-2.1
12 - Sunnyside	+2.9	+0.3	-0.2	-0.3	-2.8
13 - Kennewick	+7.4	+0.2	-0.3	-0.1	-7.1
14 - Walla Walla	+2.6	+0.4	+0.1	0.0	-2.9
15 - Colville	+3.3	+1.1	-2.3	+0.2	-0.5
16 - Ritzville	+7.8	+1.6	-0.3	-1.2	-4.6
18 - North Spokane	+1.6	0.0	0.0	0.0	-0.2
19 - Spokane Valley	+1.7	+0.2	+0.1	-0.9	-0.3
20 - Colfax	+1.1	+1.8	-0.6	-4.1	+0.6
21 - Vancouver	-0.8	-0.6	+0.1	+0.3	0.0
22 - Goldendale	+8.8	-0.1	-0.8	+0.1	-6.5
23 - Kelso	-3.0	+1.6	+0.2	+0.4	0.0
24 - Chehalis	0.0	+0.1	-0.1	+1.0	-1.3
25 - Wenatchee	+4.5	+0.3	+0.1	-0.4	-4.3
26 - Ellensburg	+4.5	+0.8	+0.3	-1.7	-3.6
27 - Okanogan Cty.	+5.8	+0.3	+0.2	0.0	-4.6
28 - Ephrata	+7.6	+0.6	-0.1	-0.5	-7.9
29 - Moses Lake	+10.1	+1.4	0.0	-0.1	-11.4
30 - Bellingham	+0.1	+0.7	-0.4	+1.6	-2.2
31 - Mount Vernon	+2.0	+0.6	-0.4	+0.9	-2.7
32 - Oak Harbor	+2.8	-0.4	-0.3	-1.3	-0.1
33 - Everett Central	+0.6	+0.6	+0.1	-0.4	-1.0
34 - Everett East	+2.0	-0.3	-0.1	-0.4	0.0
35 - Forks, Port Ang.	+3.4	-0.5	-2.0	-0.1	-0.9
36 - Bremerton	-1.1	-1.4	0.0	-0.3	+0.2
37 - Hoquiam	+3.4	+0.4	-1.5	-0.7	-1.9
38 - Shelton	-0.3	-0.1	+0.3	+0.4	+0.1
39 - Raymond	+3.2	-0.6	-0.2	-1.3	-1.7
40 - Morton	+0.3	-0.5	-0.3	+0.7	-1.0

c. Daylight Stops

A logical argument would suggest that if racial/ethnic profiling was in fact occurring, it would be more likely to manifest itself in daylight stops. During daylight hours Washington State Patrol officers would be considerably better able to determine the race/ethnicity of individual drivers than during evening hours. If agency troopers were indeed inclined to disproportionately seek out minority drivers for whatever reason, this end would be much more easily accomplished during daylight hours than during evening hours.

While it is true that there may be differences in driving times and habits according to race/ethnicity which these data cannot address, Table 3 presents data on the percentage of stops made in daylight hours[8] by race/ethnicity.

---

[8] These data were coded such that 7 p.m. to 7 a.m. constituted non-daylight stops. While we realize that there are monthly/seasonal differences in the number of daylight hours, there were not substantial differences in the number of stops over the various months included in the data set. The coding of this variable thus assumes that the seasonal/monthly differences in the number of daylight hours will essentially cancel each other out.

Table 3—Percentage of "Daylight" Contacts by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic	N
1- Gig Harbor	52.4	42.7	52.3	48.5	50.8	14,182
2 - Tacoma Freeway	55.0	44.4	49.1	45.4	48.2	50,720
3 - East Pierce Cty.	52.9	43.2	53.7	42.7	47.0	48,113
4 - Thurston Cty.	56.4	46.1	55.7	47.2	45.3	40,868
5 - Seattle North	51.3	43.9	55.4	42.5	42.1	29,574
6 - Seattle South	56.8	47.5	46.8	46.3	47.5	40,513
7 - Seattle East	58.2	49.6	57.6	48.7	51.5	56,922
8 - Valley (King Cty)	55.4	43.6	53.2	44.6	47.6	36,098
9 - North Bend	56.0	53.7	50.8	55.0	59.3	33,086
10 - Enumclaw	67.6	58.7	66.3	68.1	58.8	7,783
11 - Yakima	68.2	60.2	56.3	60.8	61.0	47,086
12 - Sunnyside	71.0	70.2	67.6	71.0	60.7	18,407
13 - Kennewick	55.8	46.1	62.8	49.9	49.4	46,577
14 - Walla Walla	71.3	64.8	75.4	**78.4**	60.2	27,473
15 - Colville	67.7	72.4	74.5	57.6	50.0	16,301
16 - Ritzville	71.7	61.6	72.1	66.4	68.5	11,368
18 - North Spokane	66.6	60.9	70.8	55.8	65.2	23,233
19 - Spokane Valley	57.7	42.9	63.7	48.2	54.9	52,031
20 - Colfax	75.1	59.4	70.9	66.7	77.4	13,308
21 - Vancouver	55.9	45.0	61.3	44.8	46.9	46,296
22 - Goldendale	76.6	72.4	70.2	76.2	71.6	15,525
23 - Kelso	52.9	54.4	58.5	50.9	43.9	33,449
24 - Chehalis	58.7	48.7	40.4	49.0	43.1	24,711
25 - Wenatchee	67.1	64.9	54.3	70.6	56.9	36,495
26 - Ellensburg	66.3	60.1	68.1	62.3	63.1	39,147
27 - Okanogan Cty.	76.7	78.4	69.0	72.2	67.8	24,890
28 - Ephrata	74.9	76.2	70.1	85.7	59.3	17,124
29 - Moses Lake	76.0	78.8	70.4	75.5	71.3	14,772
30 - Bellingham	47.8	40.9	47.4	51.3	47.1	31,125
31 - Mount Vernon	55.1	48.9	43.8	49.9	42.6	30,956
32 - Oak Harbor	58.8	35.3	49.5	42.2	40.8	23,348
33 - Everett Central	59.1	47.2	55.7	50.1	48.8	100,905
34 - Everett East	59.7	48.4	56.7	54.0	48.5	32,653
35 - Forks, Port Ang.	68.8	67.6	69.5	69.3	67.8	36,110
36 - Bremerton	55.0	40.0	60.2	45.4	45.3	90,420
37 - Hoquiam	65.4	64.5	63.3	63.4	62.3	27,766
38 - Shelton	50.5	51.4	51.4	43.0	47.9	10,865
39 - Raymond	73.4	81.0	65.9	72.9	63.6	22,058
40 - Morton	72.9	68.2	72.1	76.9	66.3	14,392

These analyses reveal that, while there is some variation in the overall proportion of daylight stops across autonomous patrol areas, a higher proportion of Blacks than Whites are stopped in only five autonomous patrol areas, and only one of these differences is greater than five percent (Raymond). The percentage of Native-Americans stopped in daylight hours is higher than the percentage of Whites in 13 of 40 APAs, with six of these differences being greater than five percent (Kennewick, Colville, Spokane Valley, Vancouver, Kelso, and Bremerton). Asians are over-represented in daylight stops compared to Whites in seven APAs, with only two of these differences being greater than five percent (Walla Walla and Ephrata). Finally, Hispanics are over-represented in daylight stops compared to Whites in two APAs, and these differences are less than five percent. **Overall, this comparison of the proportion of minority drivers compared to Whites drivers who are contacted in daylight hours reveals that minorities are for the most part under-represented in daylight stops, indicating that it is highly unlikely that members of the Washington State Patrol are engaged in racial profiling at the level of whom they pick out for contact.**

To conclude this section, comparisons of stop rates to census data, to WSP records of involvement in accidents, and to daylight versus non-daylight stops indicate that the Washington State Patrol is not engaged in racial profiling at the level of whom they contact. As has been variously stated above, these findings must be placed in the context of many other studies of racial profiling in other states and in numerous urban areas recently conducted in the United States and Canada, the vast majority of which suggest that law enforcement agencies do likely engage in racial profiling – or at least are engaging in disproportionate enforcement at the level of original driver contact. **This type of disproportionate enforcement is simply not occurring**

with the Washington State Patrol.

Driver Characteristics by Race/Ethnicity

Building upon the finding noted above that there are no significant disparities in rates of stop, the next level of analysis turns to the question of enforcement activity following a traffic stop. In order to shed as much light as possible on the multivariate analyses of enforcement activities and searches that follow in this report, Tables 4 through 10 present data on a variety of characteristics of those contacted by the Washington State Patrol by race/ethnicity for each autonomous patrol area. Each table features a variable included in the multivariate statistical model used to predict the enforcement outcomes which occur after a Washington state motorist is stopped by a Washington State Patrol trooper.

Gender is a variable that has been demonstrated in the criminal justice literature to have a significant impact on a wide variety of law enforcement outcomes (Mosher; 1996). In the specific case of the Washington State Patrol traffic stop data, female drivers are considerably more likely to be cited for traffic violations than are male drivers (see below).

Table 4 demonstrates that, statewide, the Native-American racial/ethnic motorist group has the highest proportion of female drivers contacted by the state patrol (41.2% at the state level). Approximately 30% of White drivers and Asian drivers stopped by WSP troopers were females, while approximately 25% of Black drivers and only 18.6% of Hispanic drivers contacted were female in gender. These statewide gender differences in the proportion of those contacted by WSP officers analyzed by race and ethnicity are fairly consistent across the 40 APAs in Washington state.

Table 4 - Percent Females Contacted by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	33.2	26.2	20.8	38.4	16.5
2 - Tacoma Freeway	29.3	25.8	29.5	31.5	15.3
3 - East Pierce Cty.	34.2	31.9	40.0	40.4	17.6
4 - Thurston Cty.	32.3	25.8	41.5	30.2	13.9
5 - Seattle North	29.1	24.8	44.8	25.8	12.8
6 - Seattle South	29.7	27.8	38.2	28.2	13.9
7 - Seattle East	28.4	22.8	25.7	29.2	14.3
8 - Valley (King Cty)	31.7	28.1	39.8	28.4	15.4
9 - North Bend	26.9	21.5	34.1	23.8	14.6
10 - Enumclaw	25.0	22.4	31.2	24.3	9.1
11 - Yakima	27.3	20.2	45.8	26.5	22.0
12 - Sunnyside	30.0	25.9	44.4	29.8	24.5
13 - Kennewick	33.5	30.0	38.3	32.6	24.6
14 - Walla Walla	32.3	23.5	41.4	32.4	21.0
15 - Colville	33.7	24.3	48.5	45.5	17.6
16 - Ritzville	32.1	27.9	44.4	31.3	21.2
18 - North Spokane	31.7	18.1	37.5	28.3	16.1
19 - Spokane Valley	32.0	20.9	38.7	30.9	15.3
20 - Colfax	31.7	30.7	34.5	28.1	20.5
21 - Vancouver	32.7	27.1	34.4	31.2	13.9
22 - Goldendale	27.7	13.0	39.4	23.6	13.4
23 - Kelso	31.0	23.3	24.5	25.4	13.4
24 - Chehalis	33.2	22.6	25.5	26.8	12.5
25 - Wenatchee	29.3	16.5	44.0	27.6	20.4
26 - Ellensburg	29.6	23.2	37.7	25.4	16.2
27 - Okanogan Cty.	30.8	15.4	44.7	30.5	18.0
28 - Ephrata	30.5	29.1	42.2	30.0	23.0
29 - Moses Lake	31.5	26.9	25.5	26.7	22.5
30 - Bellingham	33.6	19.6	38.1	25.1	18.9
31 - Mount Vernon	31.5	21.5	40.2	24.9	19.1
32 - Oak Harbor	32.1	20.8	48.5	40.5	23.1
33 - Everett Central	30.8	22.8	40.0	27.8	14.9
34 - Everett East	31.1	20.7	20.0	29.0	13.2
35 - Forks, Port Ang.	30.4	22.4	42.8	27.0	10.4
36 - Bremerton	32.7	25.5	42.2	37.9	15.7
37 - Hoquiam	34.9	26.9	42.6	25.6	11.8
38 - Shelton	32.8	26.6	47.2	27.5	7.3
39 - Raymond	29.6	24.3	19.6	24.9	7.7
40 - Morton	29.3	20.3	34.9	19.5	12.3
Overall	30.7	25.4	41.2	29.6	18.6

Age is another variable that has been demonstrated in the criminal justice literature to have a significant impact on a wide variety of law enforcement outcomes (Mosher; 1996; Visher, 1983). In the specific case of the Washington State Patrol traffic stop data, younger drivers are less likely to be cited for traffic violations than are more mature drivers (see below).

Viewed on a statewide basis, the ***age*** of the person contacted by the WSP officer in the field has a clear impact on law enforcement outcomes resulting from a traffic stop. According to our analysis of the WSP traffic stop data, younger drivers are more likely to be cited for violations than older people stopped for a suspected traffic violation (see below). The findings presented in Table 5 demonstrate that there are fairly substantial differences in the average age of drivers contacted by the Washington State Patrol across the several racial and ethnic categories under consideration. The average age for persons stopped by WSP troopers statewide was lowest for Hispanics at 29.5 years, for Blacks it is 32.6 years, and for Asians the mean age is 32.9 years. The average age of white drivers contacted by the state patrol was 35.5 years; for Native-Americans, the corresponding figure was 35.1 years. These age differences in the population contacted by the WSP analyzed by race and by ethnicity are fairly consistent across all of the 40 APAs throughout the state.

Table 5 - Average Age of Contacts by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	35.3	33.3	37.4	36.0	29.8
2 - Tacoma Freeway	33.9	31.8	34.8	33.1	28.7
3 - East Pierce Cty.	34.0	33.0	35.9	34.1	29.4
4 - Thurston Cty.	35.0	33.1	35.5	33.4	30.2
5 - Seattle North	34.0	32.6	34.8	30.5	29.1
6 - Seattle South	33.1	32.1	35.4	31.2	28.5
7 - Seattle East	33.1	32.6	33.7	31.6	28.3
8 - Valley (King Cty)	34.5	33.1	33.3	33.6	29.7
9 - North Bend	35.2	33.8	35.6	32.5	29.6
10 - Enumclaw	35.1	32.1	33.9	35.4	29.9
11 - Yakima	36.9	35.9	33.5	37.3	29.7
12 - Sunnyside	36.0	33.5	36.4	36.1	29.6
13 - Kennewick	34.8	35.1	36.7	35.3	29.1
14 - Walla Walla	38.2	34.7	38.2	34.8	30.5
15 - Colville	38.5	39.0	35.6	36.4	35.0
16 - Ritzville	33.5	31.9	34.7	31.7	28.5
18 - North Spokane	36.2	33.6	32.9	32.8	31.8
19 - Spokane Valley	34.0	31.4	33.9	33.1	30.3
20 - Colfax	34.9	28.4	36.4	28.3	29.0
21 - Vancouver	33.5	32.5	36.8	32.8	29.0
22 - Goldendale	39.4	40.9	38.5	40.2	31.7
23 - Kelso	35.0	33.6	37.4	33.2	29.2
24 - Chehalis	34.8	33.1	34.2	32.8	28.8
25 - Wenatchee	38.5	34.4	38.0	35.6	29.9
26 - Ellensburg	34.6	32.9	34.3	30.5	29.8
27 - Okanogan Cty.	41.4	39.5	37.4	38.7	30.3
28 - Ephrata	35.0	32.9	34.6	32.0	30.8
29 - Moses Lake	34.1	33.2	30.4	30.6	29.8
30 - Bellingham	32.5	30.8	32.7	32.7	29.1
31 - Mount Vernon	35.5	32.4	35.2	32.9	29.1
32 - Oak Harbor	37.4	33.5	37.9	35.6	29.5
33 - Everett Central	35.2	32.4	33.6	33.3	29.2
34 - Everett East	35.3	33.5	38.5	33.7	28.3
35 - Forks, Port Ang.	39.5	35.7	37.2	38.0	29.9
36 - Bremerton	35.5	31.7	35.8	34.9	29.9
37 - Hoquiam	36.2	34.9	37.0	33.8	29.6
38 - Shelton	33.8	33.6	32.6	33.7	27.1
39 - Raymond	41.4	37.2	41.2	35.6	30.4
40 - Morton	39.1	39.5	42.0	37.7	30.4
Overall	35.5	32.6	35.1	32.9	29.5

In the criminal justice literature one of the strongest predictors of law enforcement and criminal justice system outcomes is the ***number of offenses/violations*** an individual commits. For example, research on sentencing – both in juvenile and adult legal proceedings – indicates that the number of offenses committed is a strong predictor of receiving a sentence of incarceration rather than community corrections supervision, and of receiving sentences entailing longer periods of confinement if incarcerated (for reviews of the sentencing literature, see Hagan and Bumiller, 1983; Mosher, 1998). The multivariate analyses of traffic stop enforcement outcomes presented below, as a consequence, must include a measure of the number of observed violations attendant to a traffic stop.

The multivariate analyses reported below will demonstrate that the number of traffic (and other) violations a person contacted by the state patrol is identified as committing has a quite noteworthy impact on whether the driver in question receives a citation or not (and the number of citations they receive). In this regard, the findings set forth in Table 6 show that there are substantial differences in the average number of violations when the WSP traffic stop data are analyzed by race and ethnicity. At the statewide level, Asian drivers have the lowest number of violations per stop at 1.71, followed by White drivers at a rate of 1.74 per stop. The average number of violations for Black drivers contacted by the WSP was 1.94; for Hispanic drivers the figure is 1.98, and for Native-American drivers the figure is 2.05. Similar to the analyses presented above, the higher average number of current violations for Black drivers, Hispanic drivers, and Native-American drivers are fairly consistent across the 40 APAs.

Table 6 - Average Number of Violations of Contacts by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	1.80	1.84	2.13	1.78	1.99
2 - Tacoma Freeway	1.97	2.17	2.40	1.95	2.20
3 - East Pierce Cty.	2.11	2.29	2.42	2.00	2.32
4 - Thurston Cty.	1.87	1.92	2.07	1.75	1.97
5 - Seattle North	1.74	1.92	1.84	1.77	1.97
6 - Seattle South	1.81	2.09	2.02	1.82	2.09
7 - Seattle East	1.82	1.97	1.97	1.83	2.06
8 - Valley (King Cty)	1.77	1.86	1.89	1.76	1.96
9 - North Bend	1.77	1.82	2.21	1.71	1.88
10 - Enumclaw	1.60	1.60	1.94	1.53	1.81
11 - Yakima	1.63	1.71	2.01	1.49	1.91
12 - Sunnyside	1.87	2.04	2.30	1.77	2.18
13 - Kennewick	1.78	1.99	1.78	1.72	2.00
14 - Walla Walla	1.61	1.71	1.91	1.42	1.84
15 - Colville	1.63	1.83	1.90	1.52	1.86
16 - Ritzville	1.52	1.61	1.89	1.43	1.71
18 - North Spokane	1.60	1.69	1.84	1.55	1.75
19 - Spokane Valley	1.82	2.00	2.02	1.75	1.86
20 - Colfax	1.63	1.63	1.69	1.58	1.73
21 - Vancouver	1.83	1.98	1.84	1.76	2.00
22 - Goldendale	1.74	1.70	2.14	1.80	1.87
23 - Kelso	1.67	1.61	1.96	1.52	1.80
24 - Chehalis	1.78	1.64	2.20	1.50	1.92
25 - Wenatchee	1.73	1.76	1.91	1.60	1.97
26 - Ellensburg	1.55	1.61	1.72	1.53	1.71
27 - Okanogan Cty.	1.54	1.59	1.81	1.44	1.82
28 - Ephrata	1.60	1.65	2.31	1.46	2.12
29 - Moses Lake	1.59	1.69	1.95	1.47	1.84
30 - Bellingham	1.93	1.94	2.48	1.58	2.31
31 - Mount Vernon	1.71	1.70	2.15	1.50	2.11
32 - Oak Harbor	1.80	1.78	1.98	1.75	1.87
33 - Everett Central	1.70	1.78	1.95	1.59	1.87
34 - Everett East	1.54	1.63	1.77	1.54	1.81
35 - Forks, Port Ang.	1.73	1.72	2.14	1.61	2.10
36 - Bremerton	1.78	1.83	2.05	1.65	1.90
37 - Hoquiam	1.50	1.47	1.78	1.45	1.66
38 - Shelton	1.98	1.90	2.76	1.80	2.38
39 - Raymond	1.47	1.50	1.70	1.41	1.73
40 - Morton	1.66	1.61	1.88	1.40	1.92
Overall	1.74	1.94	2.05	1.71	1.98

In the criminal justice literature another one of the strongest predictors of law enforcement and criminal justice system outcomes is the ***seriousness of offenses/violations*** an individual commits. For example, research on sentencing indicates that in addition to the number of offenses committed being a strong predictor of receiving a sentence of incarceration, the seriousness of those offenses is another factor associated with the disposition of punitive sanctions. The multivariate analyses of traffic stop outcomes presented below include a measure of the seriousness of observed violations attendant to a traffic stop.

Since a potentially important predictor of law enforcement and criminal justice outcomes is the ***seriousness of the violations*** individuals commit, the multivariate model used to predict outcomes in the WSP traffic stop data would properly include an indicator of the seriousness of offense under consideration in each traffic stop situation. Table 7 presents data on the average violation seriousness score[9] by race/ethnicity for each of the 40 autonomous patrol areas. Asian drivers have the lowest average seriousness score, at .14, followed by White drivers at .19. The average seriousness score for Black drivers is .31, for Hispanic drivers is figure is .33; and for Native-American drivers it is .45.

Given the fact that minorities generally have a higher average number of violations as a result of the current stop, and they have higher average seriousness scores, it is foreseeable that they will be more likely to receive citations.

---

[9] This variable was coded **one** for serious offenses and **zero** for other offenses, and summed across the eight violation fields (with possible scores ranging from zero to eight). Serious violations included: felony drugs; misdemeanor drugs; DUI drugs with test; DUI drugs, no test; DUI underage, with test; DUI underage, no test; DUI with test; DUI without test; felony flight, elude; felony warrant; hit and run; insurance-none; license suspension/revocation; misdemeanor warrant; negligent driving, 1st degree; negligent driving, 2nd degree; reckless driving; vehicular homicide; and vehicular assault.

Table 7 - Average Violation Seriousness Score of Contacts by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	.15	.21	.44	.10	.24
2 - Tacoma Freeway	.25	.40	.68	.21	.39
3 - East Pierce Cty.	.33	.42	.59	.25	.48
4 - Thurston Cty.	.23	.30	.44	.17	.30
5 - Seattle North	.19	.31	.40	.16	.33
6 - Seattle South	.22	.39	.47	.19	.40
7 - Seattle East	.18	.28	.33	.16	.36
8 - Valley (King Cty)	.18	.29	.30	.14	.32
9 - North Bend	.18	.28	.44	.14	.30
10 - Enumclaw	.17	.13	.44	.13	.29
11 - Yakima	.16	.25	.47	.09	.33
12 - Sunnyside	.14	.23	.50	.14	.34
13 - Kennewick	.19	.35	.36	.14	.33
14 - Walla Walla	.15	.26	.44	.10	.31
15 - Colville	.14	.21	.30	.11	.25
16 - Ritzville	.13	.22	.43	.07	.26
18 - North Spokane	.15	.20	.29	.09	.24
19 - Spokane Valley	.24	.39	.45	.16	.28
20 - Colfax	.11	.21	.26	.12	.17
21 - Vancouver	.24	.37	.36	.15	.38
22 - Goldendale	.16	.14	.52	.25	.26
23 - Kelso	.18	.20	.34	.11	.28
24 - Chehalis	.21	.16	.37	.08	.32
25 - Wenatchee	.19	.21	.36	.16	.30
26 - Ellensburg	.14	.22	.30	.12	.24
27 - Okanogan Cty.	.10	.15	.30	.08	.27
28 - Ephrata	.18	.26	.57	.09	.43
29 - Moses Lake	.13	.23	.55	.05	.25
30 - Bellingham	.29	.31	.74	.10	.56
31 - Mount Vernon	.21	.22	.55	.10	.44
32 - Oak Harbor	.18	.19	.24	.13	.27
33 - Everett Central	.16	.21	.42	.09	.26
34 - Everett East	.15	.22	.43	.13	.34
35 - Forks, Port Ang.	.16	.18	.36	.09	.27
36 - Bremerton	.21	.26	.43	.13	.26
37 - Hoquiam	.14	.15	.35	.10	.21
38 - Shelton	.37	.38	.74	.27	.50
39 - Raymond	.15	.13	.35	.13	.29
40 - Morton	.17	.20	.26	.06	.32
Overall	.19	.31	.45	.14	.33

Although the data available for our analysis do not allow us to determine the prior record of individual drivers with respect to involvement in traffic incidents and/or other violations of law, these data documenting racial and ethnic group differences in the number of current violations and the seriousness of the violations for which they were stopped do permit some informed speculation in this regard. The WSP traffic stop data do suggest the possibility that members of racial and ethnic minority groups may be more likely to have prior records of commission of traffic violations than do their White counterparts. It would also be logical to expect that those individuals possessing more serious prior records would be more likely to receive citations than those lacking such prior offenses.

As an additional measure of compliance with traffic/safety legislation, Table 8 presents data on the proportion of individual drivers in each racial and ethnic group who are found to be in violation of seatbelt laws, reported for each of the 40 autonomous patrol areas. This table demonstrates that Asian drivers and White drivers are more likely to be compliant with seatbelt laws, while Native-American drivers and Hispanic drivers are substantially less likely to be thusly compliant. In fact, more than 20% of Native-Americans contacted by the Washington State Patrol in four specific APAs (Yakima, Colville, Wenatchee, and Bellingham) were found to be driving while not wearing mandatory seatbelts. These differential rates of seatbelt compliance need to be considered as an important observation in the context of Washington State's recently enacted primary seatbelt legislation, which went into effect on June 13, 2002. Such legislation will indeed save lives and serious injury, but an undesirable consequence is that this statute may also lead to disparate citation outcomes for minority motorists – most particularly Native American drivers.

Table 8—Percentage of those Contacted with Seatbelt Violations by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	.05	.06	.06	.02	.07
2 - Tacoma Freeway	.10	.12	.17	.08	.13
3 - East Pierce Cty.	.10	.10	.17	.07	.14
4 - Thurston Cty.	.06	.05	.14	.05	.09
5 - Seattle North	.05	.08	.10	.05	.10
6 - Seattle South	.07	.11	.04	.08	.11
7 - Seattle East	.07	.10	.15	.06	.13
8 - Valley (King Cty)	.07	.10	.11	.05	.10
9 - North Bend	.05	.05	.09	.05	.10
10 - Enumclaw	.04	.00	.11	.03	.08
11 - Yakima	.09	.12	.27	.05	.19
12 - Sunnyside	.06	.09	.19	.08	.16
13 - Kennewick	.09	.09	.14	.06	.13
14 - Walla Walla	.07	.07	.11	.07	.11
15 - Colville	.08	.06	.22	.06	.04
16 - Ritzville	.05	.09	.14	.13	.13
18 - North Spokane	.09	.12	.18	.13	.15
19 - Spokane Valley	.12	.13	.18	.08	.15
20 - Colfax	.10	.07	.19	.07	.15
21 - Vancouver	.09	.09	.06	.06	.13
22 - Goldendale	.06	.03	.17	.02	.07
23 - Kelso	.05	.03	.06	.04	.09
24 - Chehalis	.08	.04	.18	.03	.13
25 - Wenatchee	.10	.11	.23	.11	.21
26 - Ellensburg	.07	.08	.16	.08	.13
27 - Okanogan Cty.	.05	.05	.11	.03	.11
28 - Ephrata	.09	.11	.17	.08	.19
29 - Moses Lake	.07	.10	.18	.05	.12
30 - Bellingham	.09	.10	.23	.07	.17
31 - Mount Vernon	.07	.05	.11	.04	.14
32 - Oak Harbor	.06	.07	.07	.05	.11
33 - Everett Central	.07	.07	.13	.05	.10
34 - Everett East	.06	.07	.14	.06	.09
35 - Forks, Port Ang.	.10	.11	.17	.07	.15
36 - Bremerton	.08	.08	.18	.05	.10
37 - Hoquiam	.05	.03	.10	.03	.08
38 - Shelton	.08	.07	.18	.02	.13
39 - Raymond	.06	.05	.15	.04	.09
40 - Morton	.08	.03	.07	.05	.11
Overall	.08	.09	.18	.06	.14

One of the most difficult aspects of equitable enforcement of traffic laws relates to the fact that socio-economic inequities tend to work in such a way as to compound disadvantage. For instance, if a person is relatively poor and requires transportation to a job to make bills and sustain a household it is more likely that they would fall in arrears in the payment of license tag fees, old traffic fines, parking tickets, and the like than persons of means. Should these persons – the relatively poor and the relatively well-off – be detained by a WSP trooper for an improper lane change, for example, the likelihood that the poorer person would have a "license violation" in addition to the driving conduct to deal with would be greater than for the person of means. Since racial and ethnic minorities tend to be less well-off than Whites in Washington state as is the case elsewhere around the U.S., it is likely that some part of the disparity in traffic stop outcomes across racial and ethnic lines is a reflection of this socio-economic inequity.

In order to test for the presence of this phenomenon in the WSP traffic stop data, Table 9 presents data on the percentage of license violations recorded by racial and ethnic group for each of the the state's 40 APAs. It is quite noteworthy that the expected pattern of socio-economic disadvantage plays out in these traffic stop data. While statewide only 7% of Asian drivers and 8% of White drivers contacted by the WSP were found to have license violations, the equivalent figures for Black drivers, Native-American drivers, and Hispanic drivers are 11%, 12%, and 13%, respectively.

Table 9 - Percentage of those Contacted with Driver's License Violations by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native Amer.	Asian	Hispanic
1- Gig Harbor	.10	.12	.23	10	.15
2 - Tacoma Freeway	.08	.10	.09	.07	.13
3 - East Pierce Cty.	.13	.18	.15	.11	.17
4 - Thurston Cty.	.08	.09	.13	.05	.10
5 - Seattle North	.08	.11	.07	.06	.13
6 - Seattle South	.07	.10	.10	.06	.14
7 - Seattle East	.09	.11	.09	.08	.13
8 - Valley (King Cty)	.09	.11	.18	.08	.15
9 - North Bend	.09	.10	.14	.08	.11
10 - Enumclaw	.08	.13	.18	.05	.16
11 - Yakima	.06	.07	.10	.06	.10
12 - Sunnyside	.14	.14	.22	.07	.16
13 - Kennewick	.09	.12	.07	.08	.12
14 - Walla Walla	.08	.09	.08	.05	.11
15 - Colville	.09	.16	.11	.09	.19
16 - Ritzville	.04	.06	.11	.03	.07
18 - North Spokane	.08	.09	.14	.06	.08
19 - Spokane Valley	.08	.11	.09	.06	.11
20 - Colfax	.09	.08	.07	.07	.06
21 - Vancouver	.07	.09	.08	.05	.12
22 - Goldendale	.08	.08	.10	.06	.11
23 - Kelso	.08	.10	.11	.05	.12
24 - Chehalis	.09	.11	.24	.04	.13
25 - Wenatchee	.08	.08	.09	.08	.11
26 - Ellensburg	.06	.06	.07	.05	.08
27 - Okanogan Cty.	.09	.09	.11	.11	.14
28 - Ephrata	.06	.05	.09	.04	.12
29 - Moses Lake	.07	.07	.11	.05	.12
30 - Bellingham	.14	.15	.16	.08	.21
31 - Mount Vernon	.09	.09	.10	.05	.17
32 - Oak Harbor	.10	.13	.16	.10	.13
33 - Everett Central	.09	.11	.16	.07	.14
34 - Everett East	.06	.09	.09	.05	.10
35 - Forks, Port Ang.	.09	.13	.11	.06	.10
36 - Bremerton	.09	.10	.13	.06	.12
37 - Hoquiam	.06	.07	.10	.03	.10
38 - Shelton	.09	.11	.22	.07	.22
39 - Raymond	.04	.07	.04	.03	.09
40 - Morton	.07	.12	.16	.03	.13
Overall	**.08**	**.11**	**.12**	**.07**	**.13**

Just as the socio-economic disadvantage plays out in the payment of license fees and fines, so too does it play a similar role in the issue of mandatory insurance. Drivers in the state of Washington must maintain minimum insurance coverage while operating motor vehicles on state roads and highways, and they must be able to demonstrate proof of such coverage when requested by a bona fide officer of the law engaged in traffic law enforcement. Failure to maintain adequate insurance coverage and failure to produce proof of same can make subject a motor vehicle operator subject to a substantial fine.

In order to determine if this aspect of disadvantage plays out to the detriment of minority drivers in the state of Washington, Table 10 presents findings on the percentage of those drivers contacted by the WSP in traffic stops who are found to have insurance violations by racial and ethnic groups for each of the state's 40 APAs. The findings set forth in this table demonstrate that once again Asian drivers and White drivers are the least likely to be found to be driving without vehicle insurance, while Native-American drivers and Hispanic drivers are the most likely to be found driving without vehicle insurance. In 12 of the state's 40 APAs more than 20% of Native-American drivers contacted by the WSP in traffic stops were found not to have vehicle insurance. Similarly, in 18 of the 40 APAs more than 20% of Hispanic drivers contacted by the state patrol did not have the mandatory vehicle insurance.

Table 10 - Percentage of those Contacted with Insurance Violations by Race/Ethnicity and Autonomous Patrol Area

APA	White	Black	Native	Asian	Hispanic
1- Gig Harbor	.07	.08	.10	.06	.14
2 - Tacoma Freeway	.14	.17	.24	.12	.23
3 - East Pierce Cty.	.18	.22	.23	.14	.27
4 - Thurston Cty.	.13	.14	.19	.11	.18
5 - Seattle North	.10	.14	.09	.07	.18
6 - Seattle South	.11	.15	.15	.09	.20
7 - Seattle East	.12	.17	.11	.12	.26
8 - Valley (King Cty)	.08	.10	.07	.07	.18
9 - North Bend	.12	.14	.17	.09	.21
10 - Enumclaw	.13	.10	.24	.11	.21
11 - Yakima	.09	.09	.14	.06	.19
12 - Sunnyside	.07	.08	.18	.07	.18
13 - Kennewick	.12	.18	.17	.08	.21
14 - Walla Walla	.12	.17	.20	.08	.22
15 - Colville	.10	.18	.18	.11	.18
16 - Ritzville	.08	.11	.11	.05	.16
18 - North Spokane	.10	.13	.12	.07	.12
19 - Spokane Valley	.12	.16	.18	.10	.15
20 - Colfax	.08	.12	.07	.11	.13
21 - Vancouver	.13	.13	.09	.09	.20
22 - Goldendale	.11	.08	.20	.09	.18
23 - Kelso	.11	.10	.13	.07	.16
24 - Chehalis	.12	.05	.20	.05	.15
25 - Wenatchee	.14	.12	.21	.14	.23
26 - Ellensburg	.08	.07	.14	.08	.15
27 - Okanogan Cty.	.07	.03	.14	.07	.20
28 - Ephrata	.09	.11	.25	.06	.24
29 - Moses Lake	.06	.07	.18	.03	.15
30 - Bellingham	.14	.14	.27	.06	.28
31 - Mount Vernon	.12	.10	.18	.06	.25
32 - Oak Harbor	.13	.13	.14	.10	.18
33 - Everett Central	.09	.09	.15	.06	.16
34 - Everett East	.10	.14	.20	.10	.26
35 - Forks, Port Ang.	.10	.08	.21	.06	.17
36 - Bremerton	.11	.10	.17	.08	.14
37 - Hoquiam	.08	.06	.18	.06	.12
38 - Shelton	.14	.11	.29	.09	.24
39 - Raymond	.09	.07	.15	.08	.14
40 - Morton	.12	.10	.07	.06	.24
Overall	.11	.14	.17	.08	.20

As a preface to the multivariate analysis reported further along in this report, it is instructive to observe the extent of the "apparent" disproportionality in the rate of citation of White and minority group drivers in the state of Washington. The findings reported in Table 11 represent descriptive data on the percentage of those drivers contacted by the Washington State Patrol who are issued citations as a result of that contact, broken down by racial and ethnic group for each of the state's 40 APAs. From these data it would appear that Black drivers are more likely to be issued citations than Whites in 31 of the 40 state's APAs. Similarly, Native American drivers are more likely to be issued citations than White drivers in 31 APAs. Likewise, a higher proportion of Asian drivers compared to White drivers are likely to be issued citations in 29 APAs. Finally, a higher proportion of Hispanic drivers are issued citations in 39 APAs. However, these findings must be considered in the fuller context of the results presented in Tables 4 through 10 that demonstrate racial and ethnic differences in the characteristics of drivers, especially with respect to the violation of traffic/safety laws and the likelihood of having multiple violations during a traffic stop incident. In order to accomplish this more thorough and appropriate analysis, multivariate techniques must be applied as reported in the next section of this report.

Table 11 - Percent Issued Citation by Race/Ethnicity

	White	Black	Native	Asian	Hispanic
APA					
1- Gig Harbor	.26	.35	.39	.26	.37
2 - Tacoma Freeway	.50	.52	.61	.53	.59
3 - East Pierce Cty.	.35	.40	.52	.37	.51
4 - Thurston Cty.	.45	.48	.50	.51	.54
5 - Seattle North	.31	.36	.41	.33	.44
6 - Seattle South	.50	.54	.51	.50	.60
7 - Seattle East	.45	.47	.54	.49	.55
8 - Valley (King Cty)	.37	.39	.35	.35	.50
9 - North Bend	.41	.49	.61	.47	.53
10 - Enumclaw	.26	.19	.45	.28	.36
11 - Yakima	.28	.37	.37	.33	.44
12 - Sunnyside	.32	.52	.41	.52	.50
13 - Kennewick	.36	.40	.36	.32	.47
14 - Walla Walla	.31	.43	.46	.33	.49
15 - Colville	.23	.26	.39	.36	.29
16 - Ritzville	.47	.61	.58	.58	.60
18 - North Spokane	.36	.33	.57	.41	.46
19 - Spokane Valley	.45	.46	.55	.45	.51
20 - Colfax	.31	.27	.39	.29	.35
21 - Vancouver	.45	.45	.45	.44	.54
22 - Goldendale	.31	.24	.51	.31	.48
23 - Kelso	.46	.60	.38	.58	.62
24 - Chehalis	.36	.41	.45	.46	.49
25 - Wenatchee	.33	.34	.38	.39	.44
26 - Ellensburg	.42	.52	.45	.55	.49
27 - Okanogan Cty.	.18	.24	.22	.29	.33
28 - Ephrata	.48	.55	.42	.58	.58
29 - Moses Lake	.45	.57	.66	.68	.53
30 - Bellingham	.38	.42	.48	.54	.53
31 - Mount Vernon	.31	.38	.41	.41	.50
32 - Oak Harbor	.32	.31	.34	.29	.45
33 - Everett Central	.42	.43	.54	.50	.49
34 - Everett East	.37	.39	.46	.41	.56
35 - Forks, Port Ang.	.40	.49	.61	.43	.48
36 - Bremerton	.26	.29	.42	.25	.34
37 - Hoquiam	.33	.39	.40	.41	.41
38 - Shelton	.30	.25	.48	.27	.46
39 - Raymond	.35	.49	.46	.37	.44
40 - Morton	.40	.40	.39	.42	.53

Section Two – Citation Level of Analysis

Multivariate Analysis of Enforcement Activity

As McMahon et al. (2002) have pointed out, bivariate statistics are useful for descriptive purposes, but are far too simplistic to disentangle the role of race and ethnicity or any other single factor in determining police behavior. They also note that research on racial profiling and biased policing typically provides little or no diagnosis of the locations, times, circumstances or types of enforcement activities where the problem of biased policing, if it exists, appears most strongly or does not appear at all. The multivariate analyses presented below move us forward in our understanding of the complex interactions between race and ethnicity and a number of other variables that likely have an impact on traffic stop enforcement outcomes. We present four sets of analyses in this section of the report; the first consists of logistic regression analyses focusing on whether or not a citation was issued as a result of the contact; a second set of ordinary least squares regression analyses treats the number of citations issued as a result of the contact as the dependent variable; a third set of logistic regression analyses examines contacts in which only one violation was recorded; and the final set of analyses treats the 40 autonomous patrol areas as the unit of analysis, and presents ordinary least squares regressions treating the percentage cited, and number of citations issued, as the dependent variables.

a. Citation Issued (Yes/No)

The first set of multivariate analyses focuses on the dependent variable of whether an individual contacted by the state patrol received a citation as a result of that traffic stop contact. Taking into consideration the points made in the previous section with respect to differences in the characteristics of drivers and compliance with traffic/safety legislation across racial and

ethnic groups, we conducted separate analyses for each of the 40 autonomous patrol areas, with the predictor/independent variables in the first models consisting of the individual's gender (males coded zero, females coded one); age (in years, a continuous variable); race/ethnicity (dummy variables for Black, Native-American, Asian, and Hispanic, with Whites treated as the reference category). We also included measures of the number of current violations of the individual contacted, and the combined seriousness of those violations. The second set of models includes interaction terms for race/ethnicity multiplied by the number of violations in order to control for the possible effects on being issued a citation of differences in the number of violations observed by officers across racial and ethnic groups[10].

As mentioned above, previous research suggests that the number of violations/offenses an individual commits, and the seriousness of the violation(s) will have an important impact on criminal justice system outcomes. Table 12, which presents the odds ratios for the effect which the number of observed violations and the seriousness of violations have on the likelihood of receiving a citation, demonstrates that **the seriousness of an individual's violation(s) had a statistically significant impact on whether a citation was issued in all 40 APAs (and was the strongest predictor of whether a citation was issued, compared to all other independent variables, in all 40 APAs).** In addition, *the second most important predictor of whether a*

---

[10] We have also conducted analyses that included officer information (gender, race/ethnicity, and experience). However, given that the effects of individual officer characteristics were generally not statistically significant, and given that the inclusion of these variables adds considerable complexity to the models, we do not report on these analyses here. Given the large number of cases processed in these statistical analyses, we focus on odds ratios and regression coefficients that are significant at a very high level of statistical significance ($p < .001$).

citation was issued was the number of violations committed by the individual, which has a statistically significant effect in 35 of the 40 APAs.

Table 12 - Odds Ratios for Number of Violations and Seriousness of Offense (Citation (Yes/No) Dependent Variable) - With Interaction Terms Included

APA	Number of Violations	Seriousness of Violations
1- Gig Harbor	1.22*	4.14*
2 - Tacoma Freeway	1.26*	2.97*
3 - East Pierce Cty.	1.40*	3.16*
4 - Thurston Cty.	.99	2.78*
5 - Seattle North	1.08*	4.92*
6 - Seattle South	1.17*	3.24*
7 - Seattle East	1.21*	2.05*
8 - Valley (King Cty)	1.15*	4.01*
9 - North Bend	1.11*	2.35*
10 - Enumclaw	1.18*	3.01*
11 - Yakima	1.37*	2.88*
12 - Sunnyside	1.19*	4.33*
13 - Kennewick	1.22*	2.75*
14 - Walla Walla	1.33*	1.70*
15 - Colville	1.58*	2.32*
16 - Ritzville	1.14*	2.10*
18 - North Spokane	1.10*	3.44*
19 - Spokane Valley	1.07*	3.46*
20 - Colfax	1.42*	1.27*
21 - Vancouver	1.05*	3.22*
22 - Goldendale	1.19*	2.39*
23 - Kelso	1.01	2.22*
24 - Chehalis	.96	2.32*
25 - Wenatchee	1.39*	2.02*
26 - Ellensburg	1.05*	2.53*
27 - Okanogan Cty.	1.10*	3.27*
28 - Ephrata	1.08*	2.48*
29 - Moses Lake	.98	3.22*
30 - Bellingham	1.06*	3.29*
31 - Mount Vernon	1.13*	3.46*
32 - Oak Harbor	1.38*	1.83*
33 - Everett Central	1.18*	2.62*
34 - Everett East	1.29*	2.36*
35 - Forks, Port Ang.	1.23*	2.31*
36 - Bremerton	1.35*	2.60*

Table 12 - Odds Ratios for Number of Violations and Seriousness of Offense (cont.) (Citation (Yes/No) Dependent Variable) - With Interaction Terms Included

	Number of Violations	Seriousness of Violations
APA		
37 - Hoquiam	1.09*	2.98*
38 - Shelton	1.20*	4.16*
39 - Raymond	1.51*	2.32*
40 - Morton	1.30*	2.13*

NOTE: * p <.001

The findings set forth in Table 13 represent odds ratios documenting the raw effects of racial and ethnic group membership on receiving a WSP citation from a traffic stop. This analysis is repeated for each of the state's 40 WSP autonomous patrol areas (APAs). While this is a very difficult and time-consuming chore, the insight to be derived from these analyses is of inestimable value to our need for understanding the dynamics of racial profiling in the state of Washington. It should be noted that these findings derived from a multivariate analysis were accomplished **without** the inclusion of the race or ethnicity of the driver multiplied by the number of observed violations variables.

The results reported in this table reveal clearly that Black drivers are significantly more likely than White drivers to be issued a citation in six of the 40 WSP autonomous patrol areas. Black drivers are also significantly less likely than White drivers to be cited in one of the autonomous patrol areas. Native-American drivers are significantly more likely than their White counterparts to be cited in nine autonomous patrol areas, and they are significantly less likely to be cited during a traffic stop in two of the state's 40 WSP APAs. Asian drivers are significantly more likely than White drivers to be cited in 14 APAs, while Hispanic drivers are significantly more likely than White drivers to be issued citations in 21 APAs.

Table 13 - Odds Ratios Race/Ethnicity (Citation (Yes/No) Dependent Variable) (Race/Ethnicity* Number of Violations Interaction Terms NOT Included)

	Black	Native American	Asian	Hispanic
APA				
1- Gig Harbor	1.25	1.29	1.05	1.37
2 - Tacoma Freeway	.89*	1.23	1.16*	1.13
3 - East Pierce Cty.	1.08	2.20*	1.25*	1.40*
4 - Thurston Cty.	.99	1.15	1.27*	1.21*
5 - Seattle North	1.10	1.37	1.10	1.29*
6 - Seattle South	1.00	1.23	.98	1.12
7 - Seattle East	1.03	1.24	1.21*	1.18*
8 - Valley (King Cty)	.94	.60	.97	1.33*
9 - North Bend	1.30*	2.14*	1.30*	1.38*
10 - Enumclaw	.64	1.83	1.21	1.07
11 - Yakima	1.48*	.80*	1.35	1.36*
12 - Sunnyside	2.11*	.93	2.36*	1.46*
13 - Kennewick	1.18	1.18	.86	1.31*
14 - Walla Walla	1.42	2.30*	1.26	1.85*
15 - Colville	.91	1.95*	1.95	1.07
16 - Ritzville	1.39	1.33	1.70*	1.38
18 - North Spokane	.86	1.97*	1.21	1.37
19 - Spokane Valley	.93	1.38*	1.10	1.24
20 - Colfax	.85	1.09	.91	.89
21 - Vancouver	1.03	1.05	1.06	1.22*
22 - Goldendale	.75	1.73*	.95	1.91*
23 - Kelso	1.67*	.82	1.52*	1.59
24 - Chehalis	1.34	1.58	1.80*	1.43*
25 - Wenatchee	.99	1.21	1.42	1.21*
26 - Ellensburg	1.31*	1.16	1.42*	1.10
27 - Okanogan Cty.	1.32	.93	1.47	1.50*
28 - Ephrata	.89	.57*	1.49	1.29*
29 - Moses Lake	1.39	1.43	2.62*	1.12
30 - Bellingham	1.10	1.19	2.28*	1.45*
31 - Mount Vernon	1.10	1.27	1.71*	1.59*
32 - Oak Harbor	1.02	1.29	.89	1.51
33 - Everett Central	.91	1.32	1.31	1.09
34 - Everett East	1.05	1.90	1.14	1.73*
35 - Forks, Port Ang.	1.57*	1.70*	1.30	1.07
36 - Bremerton	1.09	1.59*	1.11	1.30*
37 - Hoquiam	1.35	1.29	1.40*	1.14
38 - Shelton	.90	1.56	.71	1.52*
39 - Raymond	1.45	1.07	1.15	1.18
40 - Morton	.78	.78	1.40	1.25

NOTE: * $p < .001$

Given the consistently strong effects of the number of violations observed during the traffic stop on whether a citation is issued to the driver, and given the racial and ethnic differences in the number of violations revealed in Table 6, we conducted additional analyses that included interaction terms for race/ethnicity measure multiplied by the number of violations variable. Table 14 presents comparisons of models without and with interaction terms included for three typical autonomous patrol areas.

For the Wenatchee autonomous patrol area, the first model indicates that Hispanic drivers are more likely to receive citations than their White counterparts. However, with the inclusion of the interaction term (race/ethnicity*number of violations) in the second model, the effect for Hispanic drivers becomes negative, indicating that Hispanic drivers' greater average number of violations in this APA has an effect on them being issued citations. Similarly, in the Forks-Port Angeles APA the first equation without the interaction effect indicates that Blacks and Native-Americans are more likely to be issued citations. However, when racial/ethnic differences in the number of violations are taken into account, the effects for these two groups are no longer significant. In the Bremerton APA, the first model indicates that Native-American drivers and Hispanic drivers are more likely than their White counterparts to be cited. However, both coefficients are reduced to non-significance when racial/ethnic differences in the number of violations are taken into account. **These observations would seem to confirm the operation of a broader, perhaps socio-economic status-related effect at work here whereby the higher likelihood that minority drivers (as described above) will have more (and more serious) observed violations has a much more significant impact on rates of citation than does race/ethnicity alone.**

Table 14 – Logistic Regressions on Citation Issued (Yes/No) for Selected APAs

Wenatchee APA

	Model 1		**Model 2**	
	B	Odds	B	Odds
Variable				
Female	-.19*	.82	-.19	.82
Age	-.02*	.98	-.02	.98
Black	-.01	.99	-.14	.87
Native American	.19	1.21	-.74	.48
Asian	.35	1.42	.58	1.79
Hispanic	.19*	1.21	-.11	.89
Number of Violations	.35*	1.43	.33*	1.39
Seriousness of Violations	.71*	2.03	.70*	2.02
Black*# of Violations			.07	1.07
Native Amer.*# of Violations			.50	1.64
Asian*# of Violations			-.15	.87
Hispanic*# of Violations			.16*	1.17
N of Cases	36,487		36,487	
Nagelkerke r^2	.136		.137	
Chi-square	3,764		3,793	

Forks APA

	Model 1		**Model 2**	
	B	Odds	B	Odds
Variable				
Female	-.06	.95	-.06	.95
Age	-.01*	.99	-.01*	.99
Black	.45*	1.57	.17	1.18
Native American	.53*	1.70	.57	1.77
Asian	.26	1.30	.51	1.67
Hispanic	.07	1.07	.10	1.10
Number of Violations	.21*	1.23	.21*	1.23
Seriousness of Violations	.84*	2.31	.84*	2.31
Black*# of Violations			.17	1.19
Native Amer.*# of Violations			-.02	.98
Asian*# of Violations			-.15	.87
Hispanic*# of Violations			-.02	.98
N of Cases	36,063		36,063	
Nagelkerke r2	.094		.094	
Chi-square	2,603		2,607	

Table 14 – Logistic Regressions on Citation Issued (Yes/No) for Selected APAs [continued]

Bremerton APA

	Model 1		**Model 2**	
	B	Odds	B	Odds
Variable				
Female	-.11*	.90	-.11	.90
Age	-.02*	.98	-.02	.98
Black	.09	1.09	-.15	.86
Native American	.46*	1.59	-.08	.92
Asian	.11	1.11	.09	1.09
Hispanic	.26*	1.30	.07	1.07
Number of Violations	.30*	1.35	.29*	1.34
Seriousness of Violations	.96*	2.61	.96*	2.61
Black*# of Violations			.12*	1.13
Native Amer.*# of Violations			.27	1.31
Asian*# of Violations			.01	1.01
Hispanic*# of Violations			.10	1.10
N of Cases	90,236		90,236	
Nagelkerke r2	.172		.172	
Chi-square	11,127		11,145	

Table 15 presents summary data for the effects of race and ethnicity on being cited with the race/ethnicity*# of violations interaction terms included for the 40 APAs. When the # of violations across groups are controlled for, Blacks are more likely to be cited in only two APAs, and are significantly less likely to be cited in one APA. The inclusion of interaction terms results in the positive effects on citation for Native-Americans being reduced to non-significance in all nine APAs for which they were more likely to be cited without consideration of their number of violations. Native-Americans are less likely to receive citations in two APAs. Similarly, the effects for Hispanics are reduced to non-significance in 20 of the 21 APAs in which they had registered effects in the first model, and in only one APA (Goldendale) are they more likely than Whites to be cited.

Hispanics are less likely to receive a citation in three APAs. However, even with the inclusion of the interaction terms, Asians are more likely to be cited in 10 APAs.

Table 15 - Odds Ratios Race/Ethnicity (Citation (Yes/No) Dependent Variable) (With Race/Ethnicity* Number of Violations Interaction Terms Included)

APA	Black	Native American	Asian	Hispanic
1- Gig Harbor	1.77	2.18	1.15	1.50
2 - Tacoma Freeway	.73*	.78	1.37*	.92
3 - East Pierce Cty.	1.00	2.97	1.34	1.16
4 - Thurston Cty.	.79	1.37	1.53*	1.08
5 - Seattle North	.85	.73	1.21	.79
6 - Seattle South	.86	2.02	.96	.67*
7 - Seattle East	.83	.83	1.30*	.86
8 - Valley (King Cty)	.79	.33	1.17	.84
9 - North Bend	1.14	1.77	1.50	1.03
10 - Enumclaw	.04	.97	3.28	.48
11 - Yakima	1.62	.50*	1.78	.96
12 - Sunnyside	3.39*	.43	2.66	.86
13 - Kennewick	1.44	1.11	.90	1.03
14 - Walla Walla	1.16	2.15	2.24	1.29
15 - Colville	1.19	1.16	3.85	1.26
16 - Ritzville	1.21	.67	1.90	1.62
18 - North Spokane	.45	1.17	1.38	.86
19 - Spokane Valley	.81	.76	1.77	1.23
20 - Colfax	.93	.65	1.29	1.28
21 - Vancouver	.75	1.31	1.22	.86
22 - Goldendale	.23	1.26	1.88	1.67*
23 - Kelso	1.76*	.50	1.72*	1.07
24 - Chehalis	1.71	.99	2.99*	1.06
25 - Wenatchee	.87	.48	1.79	.89
26 - Ellensburg	1.14	.63	1.65*	.86
27 - Okanogan Cty.	.85	.43*	2.32	.79
28 - Ephrata	.86	.52	1.97	.69*
29 - Moses Lake	1.26	.63	3.10*	.61*
30 - Bellingham	.99	.61	4.17*	.95
31 - Mount Vernon	1.15	.75	2.66*	.75
32 - Oak Harbor	.64	2.53	1.12	1.71
33 - Everett Central	.80	.79	1.58*	.90
34 - Everett East	.96	.89	.95	1.43
35 - Forks, Port Ang.	1.18	1.77	1.67	1.10
36 - Bremerton	.86	.92	1.09	1.07

Table 15 - Odds Ratios Race/Ethnicity (Citation (Yes/No) Dependent Variable)

(With Race/Ethnicity* Number of Violations Interaction Terms Included)

	Black	Native American	Asian	Hispanic
APA				
37 - Hoquiam	1.38	1.03	1.30	.73
38 - Shelton	.52	.93	1.56	1.20
39 - Raymond	1.48	.40	.81	.75
40 - Morton	.92	.95	1.82	1.01

NOTE: * p <.001

These remaining effects for Asians require some explanation. Although we do not have strong data to support this speculation, it is possible that the high citation rate for Asian drivers is related to the fact that younger Asians are driving at higher speeds than Whites, and thus are more susceptible to citation. This high citation rate for Asians may also be related to the WSP attempting to deter the "street racing" phenomenon, which has become a problem at the national level (Brown, 2001; Ratcliffe, 2003) and in the Pacific Northwest (Holt, 2003; Pressley, 2002; Schniffer, 2002), and which has been associated with young Asian males (Brown, 2001). We ran a series of regressions (not presented here) which included interaction terms for race/ethnicity*age to probe in this area. With the inclusion of these interaction terms, significant effects for the citation of Asian drivers remained only in 5 northeastern, I-5 corridor APAs (which may be characterized by a high number of Asian drivers from British Columbia). Further evidence that the higher probability of citation for Asians is related to speeding offenses is revealed in logistic regression analyses (not presented here) that separated violations into speeding and non-speeding subjects of violations. Focusing on other types of violations with citation as the dependent variable, the effect for Asians is NOT statistically significant in nine of the 10 APAs for which statistically significant effects existed with all types of violations included. Asian race/ethnicity in this analysis has a statistically significant positive impact on

receiving a citation for non-speeding offenses only in the Bellingham APA.

To conclude our analyses of whether a citation was issued as a result of an initial contact, Table 16 presents findings for the effects of gender and age for each of the 40 APAs. This table demonstrates that age has a statistically significant effect on receiving a citation in all 40 APAs (younger people are more likely to be cited than older folks). Gender also has a strong effect on citation; females are significantly less likely to be cited in 30 of the 40 APAs.

Table 16 - Odds Ratios for Female and Age (Citation (Yes/No) Dependent Variable (With Interaction Terms Included)

	Female	Age
APA		
1- Gig Harbor	.83*	.98*
2 - Tacoma Freeway	.99	.98*
3 - East Pierce Cty.	.81*	.98*
4 - Thurston Cty.	.96	.98*
5 - Seattle North	.77*	.98*
6 - Seattle South	.86*	.97*
7 - Seattle East	.85*	.98*
8 - Valley (King Cty)	.83*	.98*
9 - North Bend	.93*	.98*
10 - Enumclaw	.68*	.96*
11 - Yakima	1.01	.98*
12 - Sunnyside	1.06	.98*
13 - Kennewick	.86*	.98*
14 - Walla Walla	.77*	.98*
15 - Colville	.84*	.98*
16 - Ritzville	.89*	.99*
18 - North Spokane	.80*	.99*
19 - Spokane Valley	.89*	.99*
20 - Colfax	.91	.98*
21 - Vancouver	.85*	.98*
22 - Goldendale	.81*	.99*
23 - Kelso	.88*	.97*
24 - Chehalis	.95	.97*
25 - Wenatchee	.82*	.98*
26 - Ellensburg	.89*	.97*
27 - Okanogan Cty.	.74*	.98*
28 - Ephrata	.92	.98*
29 - Moses Lake	.85*	.98*
30 - Bellingham	.72*	.98*
31 - Mount Vernon	.72*	.98*
32 - Oak Harbor	.86*	.98*
33 - Everett Central	.90*	.98*
34 - Everett East	.83*	.98*
35 - Forks, Port Ang.	.95	.99*
36 - Bremerton	.90*	.98*
37 - Hoquiam	.90*	.98*
38 - Shelton	.92	.98*
39 - Raymond	.91*	.99*
40 - Morton	.86*	.99*

NOTE: * $p < .001$

b. Number of Citations

The second set of multivariate analyses presented here focuses on the **number** of citations individuals who are contacted by the Washington State Patrol received as a result of the stop in question. Table 17 presents beta coefficients showing the effects of the number of violations measure and the seriousness of the violation(s) measure from ordinary least squares regression analyses for each of the state's 40 autonomous patrol areas. Similar to the analyses that focused on whether or not a citation was issued, this table reveals that violation-related variables – that is, number of observed violations and the seriousness of the violation(s) in question – have consistently strong and statistically significant effects on the number of citations issued in all 40 autonomous patrol areas.

Table 18 reveals that females received a significantly lower number of citations in 33 of the 40 autonomous patrol areas, while age was a statistically significant predictor of the number of citations in all 40 of the autonomous patrol areas, with younger drivers being more likely to receive citations than older drivers.

Table 17 - Beta Coefficients for Number of Violations and Seriousness of Offense (Number of Citations, Dependent Variable)

	Number of Violations	Seriousness of Violations
APA		
1- Gig Harbor	.13*	.46*
2 - Tacoma Freeway	.24*	.43*
3 - East Pierce Cty.	.25*	.46*
4 - Thurston Cty.	.11*	.40*
5 - Seattle North	.09*	.44*
6 - Seattle South	.19*	.40*
7 - Seattle East	.20*	.26*
8 - Valley (King Cty)	.14*	.46*
9 - North Bend	.15*	.32*
10 - Enumclaw	.11*	.34*
11 - Yakima	.18*	.40*
12 - Sunnyside	.14*	.44*
13 - Kennewick	.16*	.39*
14 - Walla Walla	.12*	.24*
15 - Colville	.22*	.33*
16 - Ritzville	.16*	.29*
18 - North Spokane	.10*	.37*
19 - Spokane Valley	.17*	.48*
20 - Colfax	.16*	.20*
21 - Vancouver	.14*	.45*
22 - Goldendale	.13*	.37*
23 - Kelso	.08*	.31*
24 - Chehalis	.07*	.46*
25 - Wenatchee	.21*	.31*
26 - Ellensburg	.11*	.38*
27 - Okanogan Cty.	.05*	.33*
28 - Ephrata	.20*	.45*
29 - Moses Lake	.10*	.45*
30 - Bellingham	.11*	.57*
31 - Mount Vernon	.12*	.49*
32 - Oak Harbor	.18*	.29*
33 - Everett Central	.14*	.36*
34 - Everett East	.16*	.32*
35 - Forks, Port Ang.	.20*	.34*
36 - Bremerton	.16*	.43*
37 - Hoquiam	.08*	.32*
38 - Shelton	.17*	.54*
39 - Raymond	.23*	.31*
40 - Morton	.22*	.33*

NOTE: * $p < .001$

Table 18 - Beta Coefficients for Female and Age (Number of Citations, Dependent Variable)

	Female	Age
APA		
1- Gig Harbor	-.04*	-.09*
2 - Tacoma Freeway	-.02	-.08*
3 - East Pierce Cty.	-.03*	-.06*
4 - Thurston Cty.	-.03*	-.09*
5 - Seattle North	-.04*	-.08*
6 - Seattle South	-.03*	-.11*
7 - Seattle East	-.05*	-.12*
8 - Valley (King Cty)	-.03*	-.08*
9 - North Bend	-.02*	-.12*
10 - Enumclaw	-.06*	-.15*
11 - Yakima	-.01	-.08*
12 - Sunnyside	.00	-.10*
13 - Kennewick	-.06*	-.09*
14 - Walla Walla	-.05*	-.09*
15 - Colville	-.03*	-.08*
16 - Ritzville	-.01	-.14*
18 - North Spokane	-.05*	-.06*
19 - Spokane Valley	-.03	-.06*
20 - Colfax	-.04*	-.13*
21 - Vancouver	-.04*	-.07*
22 - Goldendale	-.04*	-.06*
23 - Kelso	-.04*	-.16*
24 - Chehalis	-.02*	-.10*
25 - Wenatchee	-.04*	-.09*
26 - Ellensburg	-.03*	-.13*
27 - Okanogan Cty.	-.05*	-.07*
28 - Ephrata	-.02*	-.09*
29 - Moses Lake	-.04*	-.10*
30 - Bellingham	-.05*	-.07*
31 - Mount Vernon	-.05*	-.09*
32 - Oak Harbor	-.04*	-.08*
33 - Everett Central	-.03*	-.10*
34 - Everett East	-.04*	-.09*
35 - Forks, Port Ang.	-.02*	-.07*
36 - Bremerton	-.02*	-.09*
37 - Hoquiam	-.02*	-.12*
38 - Shelton	-.01	-.06*
39 - Raymond	-.02*	-.05*
40 - Morton	-.04*	-.06*

NOTE: * $p < .001$

With respect to the effects of race and ethnicity, without the inclusion of interaction terms taking into account racial/ethnic differences in the number of violations, Blacks received a greater number of citations in 12 APAs, Native Americans received a greater number of citations in 15 APAs (and a lower number of citations in one APA), Asians received a significantly higher number of citations in 15 APAs, while Hispanics received a significantly greater number of citations in 29 APAs. However, similar to the analyses of whether a citation was received presented above, Table 19 reveals that inclusion of the interaction terms results in the coefficients for Blacks changing from positive to significantly negative in 12 APAs, with only one APA (Chehalis) showing a statistically significant effect for Blacks on the number of citations issued. The inclusion of the interaction terms controlling for racial/ethnic differences in the number of violations results in the coefficients for Native-Americans changing from significantly positive to significantly negative in 11 APAs (with no APA showing a significantly positive effect on the number of citations for Native-Americans), while the effect for Hispanics becomes significantly negative in 19 APAs (with no APA showing a significantly positive effect for Hispanics). However, once again the effect for Asian drivers on the number of citations issued in traffic stops is still significantly positive in 11 autonomous patrol areas even with the inclusion of the interaction term.

Table 19 - Beta Coefficients for Race/Ethnicity (Number of Citations, Dependent Variable)
(With Race/Ethnicity* Number of Violations Interaction Terms Included)

	Black	Native American	Asian	Hispanic
APA				
1- Gig Harbor	.02	-.01	.01	.01
2 - Tacoma Freeway	-.07*	.03	.03*	.01
3 - East Pierce Cty.	-.01	.01	.07	-.01
4 - Thurston Cty.	-.05	-.03*	.04*	-.02
5 - Seattle North	-.05*	-.02	.01	-.04*
6 - Seattle South	-.05*	.00	-.01	-.05*
7 - Seattle East	-.05*	-.02*	.02	-.05*
8 - Valley (King Cty)	-.03*	-.04*	.03	-.04*
9 - North Bend	-.02	.01	.01	-.03
10 - Enumclaw	-.07	-.04	.06	-.07*
11 - Yakima	.01	-.07*	.03*	-.08*
12 - Sunnyside	.01	-.07*	.01	-.16*
13 - Kennewick	-.03*	-.01	.01	-.08*
14 - Walla Walla	-.06*	-.01	.02	-.08*
15 - Colville	.01	-.03	.03	.01
16 - Ritzville	.02	-.01	.05	-.04
18 - North Spokane	-.03	-.01	.01	-.02
19 - Spokane Valley	-.02*	-.02	.03*	.01
20 - Colfax	-.05	-.05	.03	.03
21 - Vancouver	-.02	-.01	.03*	-.03*
22 - Goldendale	-.02	-.06*	.01	.01
23 - Kelso	.01	-.01	.03	-.02
24 - Chehalis	.04*	-.03	.07*	-.03
25 - Wenatchee	-.02	-.02	.04*	-.06*
26 - Ellensburg	-.04*	-.01	.03	-.04*
27 - Okanogan Cty.	-.08*	-.09*	.03	-.12*
28 - Ephrata	-.02	-.03	.05*	-.08*
29 - Moses Lake	-.03	-.01	.05	-.11*
30 - Bellingham	.01	-.04*	.11*	-.02
31 - Mount Vernon	.02	-.04*	.08*	-.08*
32 - Oak Harbor	-.03	.03	.03	-.03
33 - Everett Central	-.02*	-.03*	.04*	-.03*
34 - Everett East	.00	-.02	-.01	-.02
35 - Forks, Port Ang.	.00	.01	.03	-.02
36 - Bremerton	-.02*	-.02*	.00	-.01
37 - Hoquiam	.00	-.01	.00	-.06*
38 - Shelton	.00	-.01	.02	-.03
39 - Raymond	.01	-.02	-.01	-.04*
40 - Morton	.01	-.02	.05	-.03

NOTE: * p <.001

Table 20 presents full ordinary least squares regression models on the number of citations issued for three typical WSP autonomous patrol areas. Without the inclusion of the interaction terms, the coefficient for Black drivers is significantly positive in Seattle East (see model 1). However, when differences in the number of violations by racial and ethnic group membership are taken into account with the inclusion of the interaction terms in model 2, the coefficient for Black drivers becomes significantly negative.

In the Sunnyside APA, the coefficient for Black drivers, Asian drivers, and Hispanic drivers are positive and statistically significant in the first model. However, with the inclusion of the race/ethnicity*number of violations interaction terms in model 2, the coefficients for Black drivers and Asian drivers are reduced to non-significance, while the coefficients for Native-American drivers and Hispanic drivers become significantly negative.

Similarly, in the Bellingham autonomous patrol area the coefficients for Native American drivers, Asian drivers, and Hispanic drivers in model 1 indicate that individuals from these racial/ethnic groups receive a greater number of citations. However, with the inclusion of the interaction terms in model two, the effect for Hispanic drivers becomes negative, and the effect for Native-American drivers becomes significantly negative. However, the effect for Asian drivers once more remains positive and statistically significant.

Table 20 – OLS Regressions on Number of Citations Issued for Selected APAs

[p<.001]

Seattle East APA

	Model 1		**Model 2**	
	B	Beta	B	Beta
Variable				
Female	-.06*	-.04	-.06*	-.04
Age	-.01*	-.11	-.01*	-.12
Black	-.05*	.02	-.17	-.05
Native American	.21*	.01	-.42*	-.02
Asian	.05*	.02	.05	.02

Table 20 – OLS Regressions on Number of Citations Issued for Selected APAs (cont.)
[p<.001]

Seattle East APA

	Model 1		**Model 2**	
	B	Beta	B	Beta
Variable				
Hispanic	.12*	.01	-.15*	-.05
Number of Violations	.16*	.22	.15*	.20
Seriousness of Violations	.44*	.27	.43*	.26
Black*# of Violations			.12*	.08
Native Amer.*# of Violations			.31*	.04
Asian*# of Violations			.00	.00
Hispanic*# of Violations			.13*	.10
N of Cases	56,865		56,865	
r^2	.213		.217	

Table 20 – OLS Regressions on Number of Citations Issued for Selected APAs [cont.} [p<.001]

Sunnyside APA

	Model 1		**Model 2**	
	B	Beta	B	Beta
Variable				
Female	.00	.00	.00	.00
Age	-.01*	-.09	-.01*	-.10
Black	.20*	.02	.12	.01
Native American	.02	.00	-.45	-.07
Asian	.21*	.02	.10	.01
Hispanic	.13*	.07	-.31*	-.16
Number of Violations	.22*	.28	.11*	.14
Seriousness of Violations	.77*	.46	.73*	.44
Black*# of Violations			.05	.11
Native Amer.*# of Violations			.23*	.09
Asian*# of Violations			.06	.01
Hispanic*# of Violations			.22*	.32
N of Cases	18,380		18,380	
r2	.466		.483	

Bellingham APA

	Model 1		**Model 2**	
	B	Beta	B	Beta
Variable				
Female	-.09*	-.05	-.09*	-.05
Age	-.01*	-.07	-.01*	-.07
Black	-.00	.00	.04	.01
Native American	.12*	.02	-.21*	-.04
Asian	.20*	.05	.41*	.11
Hispanic	.11*	.03	-.08	-.02
Number of Violations	.07*	.11	.07*	.11
Seriousness of Violations	.69*	.57	.68*	.57
Black*# of Violations			-.02	-.01
Native Amer.*# of Violations			.14*	.07
Asian*# of Violations			-.14*	-.07
Hispanic*# of Violations			.09*	.05
N of Cases	30,925		30,925	
r2	.442		.445	

c. Single Violations

The importance of the impact of racial/ethnic differences in the number of violations on the question of whether or not a citation is issued is further revealed in logistic regression analyses of traffic stops in which only one violation is recorded as a result of the contact. As Engel et al. (2002) have suggested, the relative influence of race/ethnicity during low and medium discretionary situations compared to high discretionary situations is important for identifying the existence of racial profiling/biased policing. It could be argued that officers have more discretion for issuing citations in encounters in which the driver has committed only one violation (while taking into consideration the seriousness of the particular violation). Table 21 contains summary information on the effect of race/ethnicity in logistic regression analyses on the probability of receiving a citation for the 40 APAs for those drivers who have committed only one violation. Similar to the analyses presented above, these models included the variables of age, sex, dummy variables for the four racial/ethnic groups, and the seriousness of the violation.

This table reveals that Black drivers who have committed only a single violation are significantly less likely to be cited in two APAs (Tacoma Freeway and Everett Central) and are significantly more likely to be cited in three APAs (Yakima, Sunnyside, and Kelso). Native-American drivers who have committed only a single violation are significantly less likely to receive a citation in four APAs (Yakima, Sunnyside, Okanogan County, and Ephrata), and are significantly more likely to be cited in two APAs (Walla Walla, and Forks/Port Angeles).

Hispanics who have committed a single violation are significantly more likely to be cited in seven APAs (Sunnyside, Kennewick, Walla Walla, Ritzville, Goldendale, Oak Harbor, and Everett East). Asians who have committed a single violation are more likely to be cited in 14 APAs.

Table 21 - Odds Ratios for Race/Ethnicity - One Violation - Dependent Variable - Citation (Yes/No)

APA	Black	Native American	Asian	Hispanic
1- Gig Harbor	1.54	1.49	1.21	1.60
2 - Tacoma Freeway	.80*	1.02	1.32*	1.04
3 - East Pierce Cty.	.92	1.79	1.26	1.15
4 - Thurston Cty.	.84	.77	1.29*	1.16
5 - Seattle North	1.00	1.13	1.14	.97
6 - Seattle South	.92	1.93	1.00	.90
7 - Seattle East	.93	.98	1.22*	1.00
8 - Valley (King Cty)	.84	.58	1.09	.98
9 - North Bend	1.15	1.96	1.40*	1.21

Table 21 - Odds Ratios for Race/Ethnicity - One Violation - Dependent Variable - Citation (Yes/No)

APA	Black	Native American	Asian	Hispanic
10 - Enumclaw	.04	1.10	1.61	.66
11 - Yakima	1.50*	.54*	1.46	1.10
12 - Sunnyside	2.48*	.37*	2.70*	1.30*
13 - Kennewick	1.26	1.15	.84	1.15*
14 - Walla Walla	1.43	2.47*	1.59	1.55*
15 - Colville	1.11	1.52	2.99*	1.26
16 - Ritzville	1.17	.95	1.72	1.62*
18 - North Spokane	.60	1.62	1.11	1.01
19 - Spokane Valley	.88	1.10	1.34	1.21
20 - Colfax	.90	1.23	.92	1.10
21 - Vancouver	.91	1.22	1.11	1.00
22 - Goldendale	.57	1.38	1.46	1.80*
23 - Kelso	1.65*	.49	1.49*	1.27
24 - Chehalis	1.37	1.04	2.01*	1.22
25 - Wenatchee	.95	1.00	1.48	1.01
26 - Ellensburg	1.21	.83	1.56*	1.03
27 - Okanogan Cty.	1.07	.54*	1.52	1.03
28 - Ephrata	.91	.43*	1.58	.96
29 - Moses Lake	1.39	.99	2.86*	.87

Table 21 - Odds Ratios for Race/Ethnicity - One Violation (cont.)- Dependent Variable - Citation (Yes/No)

APA	Black	Native American	Asian	Hispanic
30 - Bellingham	1.01	.79	2.68*	1.07
31 - Mount Vernon	1.06	1.12	1.80*	1.11
32 - Oak Harbor	.86	1.23	.90	1.71*
33 - Everett Central	.84*	.32	1.40*	.95
34 - Everett East	1.00	1.17	1.06	1.54*
35 - Forks, Port Ang.	1.41	1.76*	1.53*	1.19
36 - Bremerton	.97	1.17	1.15	1.24
37 - Hoquiam	1.36	1.24	1.38	.90
38 - Shelton	.76	1.17	1.32	1.14
39 - Raymond	1.43	.76	.97	1.01
40 - Morton	.66	1.39	1.50	1.21

NOTE: * p <.001

Further examination of these relationships requires data which are not available from the traffic stop information captured by the WSP alone, but which will become available as a result of the citizen survey currently being conducted for the WSP. Preliminary findings from that survey are discussed below.

d. Aggregate level analyses

The final set of analyses for this section of the report treat the 40 autonomous patrol areas as the unit of analysis and use aggregate-level variables as predictors of the percentage of individuals in each APA who are cited, and the number of citations issued to individuals in each APA. These aggregate-level variables include the proportion of male contacts, the average age of contacts, the average number of violations for each individual contacted, the average seriousness of violation(s) of individuals contacted, the percentage of contacts of Blacks, Native-Americans, Asians, and Hispanics, the percentage of White and female officers, and the average level of experience of officers within the APA.

If biased policing were occurring, it would be expected that the percentage of

minorities in an APA would have an impact on the percentage of individuals cited and the number of citations issued. However, as Table 22 reveals, the percentage of contacts of Blacks, Native-Americans, Asians, and Hispanics does not have an impact on the percentage of those cited, nor the number of citations issued per contact, within APAs. In fact, the only statistically significant variable[11] in these analyses is the average age of those contacted within APAs – in APAs where the average age of those contacted is lower, there is a higher probability of citations being issued and a greater number of citations issued.

Table 22 - OLS Regressions - Average Percentage Cited and Number of Citations Issued (Autonomous Patrol Area as Unit of Analysis)

	Percentage Cited		**Number of Citations**	
Variable	B	Beta	B	Beta
Proportion Female Contacts	-.60	-.17	-.81	-.16
Average Age Contacts	-.02*	-.43	-.02*	-.42
Ave. # of Violations	.16	.31	.13	.17
Ave. Seriousness Violations	.26	.18	.60	.31
% Black Contacts	.25	.10	.45	.13
% Native Contacts	-1.33	-.17	-1.52	-.71
% Asian Contacts	-.19	-.20	-.42	-.06
% Hispanic Contacts	.11	.13	.23	.18
% White Officers	-.08	-.11	-.10	-.10
% Female Officers	-.14	-.11	-.26	-.14
Ave. Experience Officers	-.01	-.18	-.01	-.15
N	40		40	
r2	.345		.481	

NOTE: * p < .10

To conclude this section on enforcement outcomes, it is important to note that **when differences in the number of traffic safety violations across racial/ethnic groups are taken into account, the initial effects of race/ethnicity on the probability of receiving a citation**

[11] Due to the fact that there are only 40 cases in the analyses, statistical significance is reported for p < .10.

and the number of citations received are attenuated and reduced to non-statistical significance in most APAs for Blacks, Native-Americans, and Hispanics. While the inclusion of interaction terms does not attenuate the effects for Asians in all APAs, the higher probability of citation for Asians may well be related to the fact that younger Asian drivers are disproportionately likely to be cited by Washington State Patrol officials for speeding.

Section Three – Search Level Analysis

Given that few if any significant disparities in stop rate were identified above, and that rates of citation were observed to be much more clearly related to factors other than driver race/ethnicity, the level of analysis now must move to the question of searches, and whether searches are conducted at disparate rates across racial/ethnic driving populations. Although we are issuing the "final" version of our report on the Washington State Patrol traffic stop data, it remains important to emphasize the preliminary and speculative nature of our analyses on the topic of searches associated with traffic stops. Notably, the quantitative data are limited in two key respects. First, there are still some data problems even in the most recent dataset that raise reliability and validity concerns; and second, no quantitative data collection system can fully account for the specific context of each individual traffic stop and the specific factors that lead to a search, nor can it get into the minds of troopers when they make the decision to conduct a search. We can remedy the former by working with the WSP to continue to improve upon data collection and coding procedures so that we can do more sound and conclusive analyses in the future. The latter issue will have to be addressed through something other than a large quantitative dataset – specifically, a well designed qualitative inquiry is in order. This type of inquiry will follow as a consequence of the citizen survey discussed below.

We begin our discussion of searches by briefly reviewing the evolution of the WSP search data, and assessing the strengths and weaknesses of recent data and the current coding scheme for searches. We also identify aspects of the data that should be improved before it will be possible to confidently draw conclusions. Next, we describe the statistical methods we use to analyze recent search data, and we review our findings on the relationship between race and the likelihood that a motorist will be searched after he or she has been stopped by a WSP Trooper. Finally, we conclude by summarizing those findings, paying particular attention to the many questions that are left unanswered for future research.

The Evolution of the Search Data

The search variable as captured in the original data collection process was coded into three categories ("No Search," "Search no contraband," and "Search with contraband found"). That coding scheme had the advantage of being simple and user-friendly for the troopers, but it did not capture some important differences in the types of searches conducted by the officers. After consultation, WSP representatives and members of the WSU research team agreed that it would be very helpful to distinguish among specific types of searches – impound searches and consent searches, for example. The WSP responded to our concerns by improving the search code to account for variations in the types of searches conducted (distinguishing among impound searches, consent searches, searches incident to arrest, K-9 searches, warrant searches and Terry searches). The new codes are indeed serious improvements, and they were implemented in February 2002. When we conducted analyses of searches for a preliminary report to the agency we only had data through the end of February 2002. In our preliminary report, we noted several data problems that placed severe limitations on our ability to properly analyze searches. At that

time, it appeared that not all troopers had received the new "Time and Activity Reporting Sheets (TARS) that reflected the new search coding protocol. Our interviews with troopers in a Spring 2002 Seattle meeting confirmed this, and the existence of the old code for search "S" in the February data further confirmed our perceptions of inconsistent coding. It was also clear in the search data that mandatory searches such as those done when a driver was stopped for DUI were significantly underreported. Further, the rates of searches reported under the new coding scheme in February 2002 were slightly higher than the rates of searches in the data prior to February 2002. This suggested to us that searches were underreported under the old TARS scheme, and that after February 2002 we would have a more accurate count of searches conducted by the WSP. Finally, the original search variable in the dataset did not do a good job of distinguishing between searches that resulted in the discovery of contraband and those that did not.

Since implementation of the new protocol in February 2002, the new coding scheme for searches has been more uniformly applied. As we discuss below, the data have improved substantially, but problems remain that hamper our ability to draw firm conclusions about the relationship between race and the likelihood of searches. Briefly, it appears that: (1) searches remain underreported for some offenses, such as DUI violations; (2) we do not have information about or counts for contacts in which officers ask for the driver's consent to be searched but the driver refuses to give consent; and (3) the current method of coding for contraband is inadequate and somewhat confusing, probably resulting in undercounts of contraband and the failure to identify the nature and quantity of contraband that is found.

To preview our findings, our analyses here indicate the existence of some potential, but not conclusive, effects of race on whether or not a search is conducted once a driver has been stopped. It appears that Native American drivers are searched at much higher rates than White drivers, and that Black drivers and Hispanic drivers are searched at moderately higher rates. Asian drivers are searched at slightly lower rates than White drivers. The gender of the driver and the officer also affect the likelihood of a search – females are generally less likely to be searched and less likely to search. The race and gender of the officer may also be a factor. One important and reassuring finding is that the seriousness of the offense appears to be the strongest predictor of searches, as do other contextual variables that reflect the nature of the traffic stop – stronger than the effect of race. Additionally, a comparison of searches conducted when troopers are exercising discretion to those that are nondiscretionary show that race is not a bigger factor in the likelihood of a search when the officer conducts a discretionary search than when an officer conducts a nondiscretionary search. **As we discuss below, this is one indicator that while there may be racial disparities in search rates, those disparities do not appear to be the result of intentional discrimination by troopers**. We discuss these finding in more detail in the following section.

Search Data Analysis and Results

Our analysis of searches is based on all traffic stops reported in the WSP Traffic Stops data from March 1, 2002 through October 31, 2002. We do not analyze any data prior to March 1 because the new coding scheme for searches only began to be implemented in February 2002, and we assume it took at least the month of February for the new coding scheme to be distributed and more uniformly implemented. The data received by the WSU team from the WSP for

analysis here ends on October 31, 2002. However, we have also performed some diagnostic analysis on data covering the period from November 1, 2002 through April, 2003. There appears to be continuing improvement in the coding of searches. While not yet sufficiently improved to increase our analytical confidence, this trend does bode well for future analyses—once more data exist under the improved coding. No clear differential in other analyses are revealed by our brief look at these most recent data.

Although the WSP data divides searches into seven categories, we have used those categories to create three slightly more general categories: *No Search*, *Nondiscretionary Search,* and *Discretionary Search.* *No Search* is coded the same as the "no search" category in the WSP data. *Nondiscretionary Search* includes those searches that, at least theoretically, troopers are obliged to conduct or have little discretion in choosing whether to conduct. This category includes "Search Incident to Arrest," "Impound Search," and "Warrant Search." *Discretionary Search* includes those searches that are conducted entirely at the officer's discretion. We include "Consent Search," "K9 Search," and "Terry (Pat Down) Search" in this last category. Thus, the basic search variable we use for most of our analyses here is made up of three unordered nominal values. We also divide the Nondiscretionary Search and Discretionary Search categories into searches where contraband was found and searches where it was not found, thereby creating four basic search categories. We begin our analysis by reporting basic frequencies of the dependent variable, as well as exploring certain binary relationships such as the rate of the searches within different racial groups. Finally, we report the results of multivariate analysis in the form of a multinomial logit approach.

Table S-1 reports the frequencies of our dependent variable. There are a total of 677,514 observations in the data (from March 2002 through October 2002). Of those 654,121, or 96.5% of all stops, did not result in a search; 23,393, or 3.5% of all stops, resulted in a search. Of these searches, 18,062 (2.7% of all stops) were nondiscretionary searches while 5,331 were discretionary searches. We note that our prior analysis set forth in our preliminary report indicated that under the old coding scheme (prior to February 2002), only 2.8% of the traffic stops entailed searches. We believe the increase in recorded searches indicates that the coding scheme implemented in February 2002 has helped to improve the reporting of all the searches that do occur. Table S-2 also reports the frequencies of searches, but only for those stops identified by troopers as self-initiated contacts (Contact Type=1). Although one might expect the rate of searches (especially discretionary searches) in self-initiated contacts to differ from the rate of searches in all contacts, in fact the rate of searches in self-initiated contacts is nearly identical to the rate in all contacts. This fact alone would seem to indicate the absence of bias in the decision to search. Table S-2 shows that out of 513,815 self-initiated contacts, the overall search rate is just under 3.5%, nearly identical to the overall rate of searches in all contacts as reported in Table S-1. Interestingly, the rate of discretionary searches in self-initiated contacts is only 0.5% compared to 0.8% in all contacts. **This finding dispels the argument that Troopers target certain motorists for searches prior to the actual contact.**

Table S- 1. Frequencies of Searches (all observations), March 2002-October 2002

	Frequency	Percent
Nondiscretionary Search	18,062	2.7
Discretionary Search	5,331	0.8
No Search	654,121	96.5
Total	677,514	100.0

*Nondiscretionary searches include search incident to arrest, impound search, and warrant search. Discretionary search includes consent searches, k9 searches and Terry searches.

Table S-2. Frequencies of Searches (self initiated contacts only), March 2002-October 2002

	Frequency	Percent
Nondiscretionary Search	15,083	2.9
Discretionary Search	2,744	0.5
No Search	494,664	96.5
Total	513,815	99.9

*Percentages do not add to 100% due to rounding

Table S-3 is a cross tabulation of the search categories, including the categories on contraband, by race for March-October of 2002. This table reports rates of search for all motorists who had contact with the WSP during the specified period based on the reported race of the driver. The findings here are consistent with earlier observations that there are in fact some facial statistical disparities in the rates of searches for different racial groups. Overall, over 3.4% of all contacts result in a search. Only about 3% of White drivers and 2.5% of Asian drivers are searched after being pulled over, while about 6.7% of Hispanic drivers, 7.6% of Black drivers, and 15% of Native American drivers who are pulled over are searched. While these noteworthy disparities are not necessarily indications of discrimination (biased policing or "racial profiling"), they cannot be ignored and they clearly call for further inquiry into the relationship between race and searches. This need for further inquiry is bolstered by the seemingly contra-indicated high regard with which Native American survey respondents hold the Patrol, as discussed below.

There are also greater differences in search rates among the racial groups for discretionary searches than for nondiscretionary searches. About 3% of all contacts result in a nondiscretionary search, and about 0.5% in a discretionary search. Table S-3 shows that about 2.7% of White drivers and 2.2% of Asian drivers are subject to nondiscretionary searches, 5.7% of Hispanic drivers, 6.6% of Black drivers and 12.9% of Native American drivers are subject to nondiscretionary searches. On the other hand, approximately 0.4% of White drivers, 0.4% of

Asian drivers, 1% of Hispanic drivers, 1% of Black drivers and 2.1% of Native American drivers are subject to discretionary searches.

It is worth noting here that the definition of discretionary searches does not include cases in which troopers use their discretion to ask a driver for permission to search, but are denied permission. These data contain no information about the frequency of those occurrences, nor information about the drivers who refuse to grant such permission. If, hypothetically, White drivers and Asian drivers refuse to consent to searches more often than Hispanics, Blacks and Native Americans, the disparities in discretionary searches would be diminished and we could conclude that troopers do not use their own discretion to target any particular racial or ethnic groups. This is an empirical question for which we presently have no data, however.

Table S-3. Crosstab of Search by Race, March 2002-October 2002

(all observations, N=677,223)

	No Search	Nondiscret. Search no Contraband	Nondiscret. Search with Contraband	Discretionary Search no Contraband	Discretionary Search with Contraband	Total
White	552,578 (97%)	11,004 (1.9%)	3,643 (0.6%)	1,843 (0.3%)	584 (0.1%)	569,652 (100%)
Black	21,469 (92.4%)	1,258 (5.4%)	283 (1.2%)	183 (0.8%)	52 (0.2%)	23,245 (100%)
Native Am.	3,307 (84.9%)	394 (10.1%)	111 (2.8%)	68 (1.7%)	15 (0.4%)	3,895 (100%)
Asian	20,073 (97.5%)	402 (2.0%)	48 (0.2%)	52 (0.3%)	15 (0.1%)	20,590 (100%)
Pacific Isl	1,915 (95.3%)	68 (3.4%)	12 (0.6%)	11 (0.5%)	3 (0.1%)	2,009 (100%)
East Indian	8,160 (98.8%)	68 (0.8%)	10 (0.1%)	23 (0.3%)	1 (0.0%)	8,262 (100%)
Hispanic	43,557 (93.4%)	2,219 (4.8%)	439 (0.9%)	361 (0.8%)	77 (0.2%)	46,653 (100%)
Other	2,811 (96.4%)	65 (2.2%)	29 (1.0%)	12 (0.4%)	0 (0.0%)	2,917 (100%)
Total	653,870 (96.6%)	15,478 (2.3%)	4,575 (0.7%)	2,553 (0.4%)	747 (0.1%)	677,223 (100%)

Table S-4 presents an analysis of Discretionary and Nondiscretionary searches that result in contraband found or no contraband found cross-tabulated by race. Overall, 19.6% of all nondiscretionary searches result in contraband being found, but only 3.2% of all discretionary searches result in contraband being found. These results indicate that once a search is conducted, Whites are the most likely group to be found with contraband. Interestingly, the rates at which contraband is found are more consistent across races for discretionary searches than for nondiscretionary searches. This is an interesting finding that raises the question of why minority motorists are apparently searched more often if White motorists are more likely to be found with contraband. An important limitation to answering this question is that the data do not currently distinguish among different types or amounts of contraband – and surely not all contraband is viewed as equal in terms of the urgency with which a trooper might need to identify or confiscate it. An additional problem with the contraband codes is that the current coding scheme does not create a separate variable for contraband. Troopers are instructed to record the code for the type of search conducted and whether contraband is found *in the same variable*. Unfortunately, many of the searches coded in the data do not include a code for contraband at all. We coded these as "no contraband" for our analyses here, but we are not confident that the current data accurately account for whether or not contraband was found.

Table S-4. Crosstab of Contraband by Race, March 2002-October 2002
(of searches only, N=23,353)

	Nondiscret. Search no Contraband	Nondiscret. Search with Contraband	Discretionary Search no Contraband	Discretionary Search with Contraband	Total
White	11,004 (64.4%)	3,643 (21.3%)	1,843 (10.8%)	584 (3.4%)	17,074 (100%)
Black	1,258 (70.8%)	283 (15.9%)	183 (10.3%)	52 (2.9%)	1,776 (100%)
Native Am.	394 (67.0%)	111 (18.9%)	68 (11.6%)	15 (2.6%)	588 (100%)
Asian	402 (77.8%)	48 (9.3%)	52 (10.1%)	15 (2.9%)	517 (100%)
Pacific Isl	68 (72.3%)	12 (12.8%)	11 (11.7%)	3 (3.2%)	94 (100%)
East Indian	68 (66.7%)	10 (9.8%)	23 (22.5%)	1 (1.0%)	102 (100%)
Hispanic	2,219 (71.7%)	439 (14.2%)	361 (11.7%)	77 (2.5%)	3,096 (100%)
Other	65 (61.3%)	29 (27.4%)	12 (11.3%)	0 (0.0%)	106 (100%)
Total	15,478 (66.3%)	4,575 (19.6%)	2,553 (10.9%)	747 (3.2%)	23,353 (100%)

Table S-5 is a cross-tabulation of search categories by specific violations as reported in variable V1 (Observed Violation #1) on the TARS form. The offenses most likely to result in searches are all forms of DUIs, Negligent Driving, Reckless Driving, Hit and Runs, suspended Licenses, open containers, minor in possession, Felony Warrants, and drug offenses -- among several other offense categories featuring quite small numbers of cases.

As we have noted in our preliminary report and in conversations with WSP officials, the WSP traffic stop data indicate that over 35% of DUIs do not result in reported searches, a finding which seems highly improbable. Additionally, high percentages of offenses such as open container violations, minor in possession, warrant violations and drug offenses do not result in reported searches, which also seem unlikely to be true. These oddities would seem to indicate

that either a problem in reporting form use, trooper training and instruction, or confusion over terms of some sort result in mistakes in how troopers code this variable. In any event, such findings continue to call into question the validity of some of the search data, and in turn limit how much can be concluded from an analyses of available traffic stop data alone. As noted above, our guide review of the most recent data indicate improvement in recording, a trend which will eventually result in data of sufficient quality to allow statement of findings with confidence we do not have at this juncture.

Table S-5. Search by Violation (V1), March 2002-October 2002 (selected violations only)

	No Search		Nondiscretionary Search		Discretionary Search		Total
DUI-With Test	1,060	37.3%	1,696	59.6%	88	3.1%	2,844
DUI-W/O Test	233	34.6%	423	62.8%	18	2.7%	674
Neg Driving-1st Degree	227	84.4%	35	13.0%	7	2.6%	269
Speed	46,019	96.9%	1,292	2.7%	190	.4%	47,501
Speed-Too Fast	6,161	93.3%	425	6.4%	14	0.2%	6,600
Follow too close	10,513	96.7%	314	2.9%	50	0.5%	10,877
Right of Way	3,163	95.2%	149	4.5%	10	0.3%	3,322
Centerline	3,429	90.5%	336	8.9%	25	0.7%	3,790
Lane Travel	23,435	91.0%	2,074	8.1%	243	0.9%	25,752
Shoulder	8,739	93.3%	589	6.3%	35	0.4%	9,363
Passing	2,099	97.4%	54	2.5%	2	0.1%	2,155
Signal	9,074	96.0%	334	3.5%	40	0.4%	9,448
Turning	3,040	93.8%	183	5.6%	17	0.5%	3,240
Stop Sign	4,350	96.3%	150	3.3%	16	0.4%	4,516
Traffic Light	3,019	95.4%	134	4.2%	10	0.3%	3,163
Light Violations	45,012	97.2%	1133	2.4%	154	0.3%	46,2994
Headlights-None	1,961	92.8%	141	6.7%	12	0.6%	2,114
Parking Viol	1,429	95.1%	62	4.1%	12	0.8%	1,503
Pedestrian Viol	2,522	86.4%	80	2.7%	317	10.9%	2,919
Lane Change	6,703	96.0%	243	3.5%	39	0.6%	6,985
Reckless Driving	586	66.1%	288	32.5%	12	1.5%	887
Hit and Run	302	85.3%	49	13.8%	3	0.8%	354
Neg Driving-2nd Degree	2,223	91.6%	185	7.6%	19	0.8%	2,437
DUI-Drugs	52	24.6%	156	73.9%	3	1.4%	211
DUI-Under Age W/Test	19	26.0%	53	72.6%	1	1.4%	73
Veh. Lic (tabs/plates)	33,475	97.5%	714	2.1%	151	0.4%	34,340
Child Restraint	889	96.0%	34	3.7%	3	0.3%	926
Safety Belt	36,057	96.4%	1,065	2.8%	278	0.7%	37,400
License Susp/Rev	679	68.6%	289	29.2%	22	2.2%	990
Insurance-None	1,639	97.3%	39	2.3%	6	.4%	1,684
Open Container	510	69.6%	141	19.2%	82	11.2%	733
Minor in Possession	414	53.1%	293	37.6%	73	9.4%	780
Vehicle Theft	19	51.4%	15	40.5%	3	8.1%	37
Drugs-Felony	31	11.3%	176	64.0%	68	24.7%	275
Misdemeanor Warrant	493	47.2%	487	46.6%	65	6.2%	1,045
Felony Warrant	129	38.5%	178	53.1%	28	8.4%	335
Drugs-Misdeameanor	124	16.3%	475	61.9%	166	21.8%	762
Stolen Veh. Recovered	22	31.4%	42	60.0%	6	8.6%	70

Having noted early in this report that simple bivariate analyses are not in themselves sufficient to address the question of biased policing, we report next the results of a multivariate analysis in which we analyze the influence of race on the likelihood of searches, while controlling for other variables. The dependent variable is a nominal variable with three unordered categories; consequently, the appropriate analytical model is a multinomial logit (see Greene 1993, 666-668). Table S-6 presents the results of such an analysis of all WSP searches arising from traffic stops conducted in the state of Washington from March 2002 to October 2002. In this statistical model we assess the effects of specific driver characteristics (gender, age and race), the nature of the stop (number of violations, seriousness of violation(s), and daylight versus night stops), officer characteristics (gender, race and experience), and we control for geographical location of the stop at the District level.

In this analysis, the strongest predictor of either a nondiscretionary or a discretionary search is the seriousness of the violation(s). This observation is in keeping with findings already reported with regards to citations discussed above. At the statewide level, more serious violations significantly increase the likelihood that a search will occur. The other variables in our "nature of the stop" category, Number of Violations and Daylight, are also statistically significant predictors of searches. Searches are more likely to be conducted at night than during daylight hours. The importance of these three variables suggests that contextual factors for individual stops, rather than the race or ethnicity of a driver, are the actual reasons why searches occur or do not take place during WSP traffic stops.

That said, however, it is noteworthy that the second most powerful predictor in the multivariate model is the Native American group membership variable; being a Native American

increased the likelihood that a search will occur during a traffic stop even when all other factors are being controlled for in the analysis. Additionally, searches are somewhat more likely to be made of Black and Hispanic drivers than of white drivers, and less likely to occur with Asian drivers and East Indian drivers than with White drivers. **In the case of searches, while we can demonstrate the critical importance of the other contextual variables – such as the seriousness of the offense, the number of violations observed, and the time of day or night – in the multivariate model race and ethnicity remain important factors in searches.** It is noteworthy, however, that the influence of race would not seem to depend upon whether a trooper conducts a nondiscretionary or discretionary search. The coefficients for Black, Hispanic and Native American drivers remain positive and at about the same magnitude for both categories of searches. **This finding of no difference in rate of search of minority drivers between discretionary and nondiscretionary searches suggests that where WSP officers have the most discretion in choosing to conduct a search, they do not act any differently toward different racial groups than when they act with no (or with little) discretion.** This finding in turn suggests that while there appear to be systematic disparities in the probability that these three minority groups will be searched compared to Whites and other racial groups, those disparities do not seem to be a result of the intentional bias of troopers.

There are two other driver characteristics that also have significant effects on the probability of a search. Younger drivers are somewhat more likely to be searched than older drivers, and women are less likely to be searched than men. While the coefficient for age remains about the same from nondiscretionary searches to discretionary searches, the coefficient for gender changes rather dramatically. According to this analysis, women are always less likely

than men to be searched, but they are even less likely to experience a discretionary search compared to a nondiscretionary search.

According to the results of analysis of the "officer characteristic" variables, minority officers in the aggregate are less likely to conduct nondiscretionary searches than white officers. However, while Asian and Native American officers are less likely than their White counterparts to conduct discretionary searches, Black and Hispanic officers are more likely to conduct discretionary searches than White officers. The multivariate coefficient for female officers is positive for both types of searches (although not statistically significant for discretionary searches), suggesting that female WSP officers are more likely to conduct searches than men. This finding seems somewhat counterintuitive, and merits further inquiry in a qualitative study. Officers' experience as measured by their number of months on the WSP would not appear to have much influence on the likelihood of a search resulting from a traffic stop situation.

Although we included the District variables mainly as control variables, there is a trend in the coefficients worth noting here. The Spokane District was used as the baseline district, so we interpret the district coefficients as being relative to the Spokane District. Motorists in every WSP district except for Yakima (the Marysville coefficient is not statistically significant) are more likely to experience a nondiscretionary search than those in the Spokane District. The same is not true of discretionary searches, however. According to the results of this analysis, motorists in all seven non-Spokane districts are less likely to experience a discretionary search than those in the Spokane district (the Vancouver district coefficient does not quite achieve a satisfactory level of statistical significance).

Table S-6. Multinomial Logit on Search Variable
(0= No Search, 1=Nondiscretionary Search, 2=Discretionary Search),
March 2002-October 2002 (N=535,405)

	Nondiscretionary Search		Discretionary Search	
Variable	***Coefficient (S.E.)***	***Significance level***	***Coefficient (S.E.)***	***Significance level***
Driver Characteristics:				
Female	-.18 (.02)	.00	-.57 (.05)	.00
Age	-.02 (.00)	.00	-.04 (.00)	.00
Black	.71 (.03)	.00	.72 (.08)	.00
Native American	1.69 (.06)	.00	1.78 (.13)	.00
Asian	-.26 (.06)	.00	-.33 (.14)	.02
Pacific Islander	.23 (.14)	.10	.18 (.32)	.57
East Indian	-.97 (.13)	.00	-.81 (.28)	.00
Hispanic	.60 (.03)	.00	.60 (.06)	.00
Other Race	.13 (.13)	.30	-.07 (.29)	.82
Nature of Contact:				
Number of Violations	.67 (.01)	.00	.45 (.01)	.00
Serious Violation(s)	2.89 (.03)	.00	2.55 (.01)	.00
Daylight	-1.21 (.02)	.00	-.58 (.04)	.00
Officer Characteristics:				
Female Officer	.15 (.03)	.00	.05 (.07)	.49
Black Officer	-.08 (.06)	.20	1.03 (.08)	.00
Asian Officer	-.79 (.08)	.00	-.75 (.18)	.00
Hispanic Officer	-.35 (.07)	.00	.45 (.11)	.00
Native Am. Officer	-.18 (.06)	.00	-.49 (.19)	.01
Officer Exp. (months)	.00 (.00)	.57	-.001 (.00)	.00
District:				
Tacoma (District 1)	.15 (.04)	.00	-.22 (.08)	.00
King (District 2)	.09 (.03)	.01	-.07 (.07)	.02
Yakima (District 3)	-.38 (.04)	.00	-.60 (.09)	.00
Vancouver (District 5)	.19 (.04)	.00	-.12 (.08)	.13
Wenatchee (District 6)	.08 (.04)	.03	-.28 (.08)	.00
Marysville (District 7)	.04 (.04)	.30	-.24 (.07)	.00
Bremerton (District 8)	.30 (.04)	.00	.17 (.07)	.02
Constant	-3.87 (.04)	.00	-4.19 (.09)	.00

*Baseline Category for the Dependent Variable=No Search

APA – Level Search Analysis

In addition to simply controlling for geographical differences in search rates as in the previous statistical model, we also ran the same analysis at the APA level. Due to the low number of observations for certain variables in some APAs, we faced various statistical problems in accomplishing this type of statistical analysis. For example, there is not much variation in the race of drivers stopped in some of the state's 40 APAs. As a consequence, we are unable to estimate parameters for certain variables in a number of the APAs; this is particularly true in the discretionary search category due to the relatively low number of observations in that category of searches. While these data problems result in yet another reason to be cautious in interpreting the results on searches arising from traffic stops, we nonetheless report the coefficients for selected independent variables from the multinomial logit models for each APA. In Table S7 we report the coefficients, where they can be estimated, for four race and ethnicity variables (Black, Native American, Asian and Hispanic) and for the contextual variables on the nature of the search (seriousness, number of violations and daylight). We use these results primarily to show how the predictors of searches may vary among APAs and to look for suggestive relationships between searches and these particular variables. In interpreting the relative strength of these variables, the coefficients within each APA should be compared to one another.

Our discussion of these results will focus on the nondiscretionary search category for two essential reasons. First, the number of observations is greater in that category and there were far fewer statistical problems in estimating the parameters for that category of search. Second, our earlier analysis demonstrated that the search rates among the different races do not appear to vary much from nondiscretionary search to discretionary search. While the analysis was difficult

to conduct for discretionary searches and resulted in many failures to estimate parameters for some variables, the results that were interpretable are reported in Table S8. **The first conclusion we wish to emphasize is the relative importance of the contextual variables – especially the seriousness of the observed violation indicator. Although this is generally true in both categories of search, a serious violation is clearly the most significant (statistically and in terms of magnitude) predictor of a search in nondiscretionary searches for every APA except APA 12 (Sunnyside), APA 15 (Colville) and APA 18 (North Spokane).** In APA 12, the Native American variable is a slightly stronger predictor of searches than the seriousness variable. In APA 18, the coefficients for Native American and serious violations are the same, although the latter achieves a higher level of statistical significance. APA 18 appears to present the biggest concern because the coefficient for the Native American variable is larger in magnitude and it achieves a higher level of statistical significance than the serious violation variable. **In every APA, the serious violation variable is highly statistically significant and highly correlated with the likelihood of a search.**

Again emphasizing caution in how we interpret these results, we draw attention to several specific APAs. As noted above, APA 15 (Colville) is problematic because being Native American seems to be a more important factor related to searches than is serious violation. We also note that the analysis for several APAs results in statistically significant estimates for more than one racial group. The APAs with the largest coefficients for race or ethnicity variables in which at least two such variables are highly statistically significant are APA 7 (Seattle East), APA 11 (Yakima), APA 16 (Ritzville), APA 18 (North Spokane), APA 27 (Okanogan County), and APA 35 (Forks, Port Angeles). Other APAs with moderately high coefficients for more than

one race with high levels of statistical significance are APA 2 (Tacoma Freeway), APA 6 (Seattle South), APA 12 (Sunnyside), APA 19 (Spokane Valley), APA 21 (Vancouver), APA 22 (Goldendale), APA 29 (Moses Lake), APA 31 (Mount Vernon) 34 (Everett Central), and APA 36 (Bremerton).

It should be noted that about half of the APAs result in statistically significant and relatively high coefficients for Native Americans. The coefficients for the following four APAs draw attention to possible relationships between Black group membership and the likelihood of search: APA 7 (Seattle East), APA 11 (Yakima), APA 18 (North Spokane), and APA 35 (Forks, Port Angeles). The coefficients for the following four APAs draw attention to possible relationships between Hispanic group membership and the likelihood of search: APA 10 (Enumclaw), APA 12 (Sunnyside), APA 24 (Chehalis) and APA 27 (Okanogan Cty.). Although there is a negative relationship between the Asian group membership variable and the likelihood of a nondiscretionary search, Asian drivers appear more likely than others to be searched in APA 18 (North Spokane).

To conclude, patterns of racial disparity in incidence of search arising from traffic stops do vary considerably at the APA level, but the importance of the contextual factors we control for in our statistical models is consistent across APAs. There are clearly relationships between specific races and ethnic group memberships of drivers and searches in specific APAs, but this pattern is not consistent across the State. These relationships do not indicate conscious, purposeful discrimination or bias by the Washington State Patrol as an agency, but they do suggest the need to investigate further the possible causes and regional dynamics underlying these statistical relationships at the APA level.

Table S7 – Multinomial Logit Coefficients for Race and Contextual Variables (NonDiscretionary Search Category of Search Dependent Variable)

	Black	Native American	Asian	Hisp.	Serious viols.	# of viols.	Daylight
APA							
1- Gig Harbor	.68*	.21	-1.5	.24	2.7**	.84**	-1.1**
2 - Tacoma Freeway	.57**	1.4**	-.37	.37*	2.8**	.87**	-.93**
3 - East Pierce Cty.	.22	1.8*	-.26	.72**	2.6**	.83**	-.90**
4 - Thurston Cty.	.89**	.92	-.49	.33	2.8**	.65**	-.51**
5 - Seattle North	.35*	.02	-.10	.28	2.6**	.92**	-1.2**
6 - Seattle South	.51**	.89	-.18	.43**	2.5**	.70**	-.74**
7 - Seattle East	1.0**	2.6**	-.01	.73**	2.9**	.67**	-1.3**
8 - Valley (King Cty)	.73**	2.1**	.30	.78**	2.7**	.84**	-.85**
9 - North Bend	.66	1.5*	-2.0	.59*	3.2**	.79**	-.81**
10 - Enumclaw	.--	.99	.55	2.0**	2.4**	1.0**	-2.0**
11 - Yakima	1.2*	1.6**	.02	.56**	2.1**	.52**	.48
12 - Sunnyside	.87	2.0**	.--	.82**	1.6**	.49**	-1.3**
13 - Kennewick	.08	2.4*	-1.3	.33*	4.2**	.95**	-1.3**
14 - Walla Walla	1.1	2.0**	.--	1.0**	5.1**	.45*	-.54
15 - Colville	.88	2.5**	.--	1.5	1.8*	.97**	-.87**
16 - Ritzville	1.0*	1.4*	.15	.73*	3.3**	1.3**	-.79**
18 - North Spokane	2.1**	1.5*	1.6*	.50	1.5**	.94**	-1.3**
19 - Spokane Valley	.72**	.94*	0.02	.67*	2.9**	.83**	-1.4**
20 - Colfax	.60	1.3	.24	-.94	5.0**	1.1**	-.62
21 - Vancouver	.86**	1.1	-.75*	.56**	3.2**	.77**	-.95**
22 - Goldendale	.--	2.0**	.77	.91*	3.6**	.93**	-1.0**
23 - Kelso	.57	1.6	-1.6	.64**	2.5**	.76**	-.81**
24 - Chehalis	.41	-.54	-.64	1.6**	2.2**	.88**	-1.2**
25 - Wenatchee	.92	.78	.--	.30	3.7**	.84**	-.83**
26 - Ellensburg	.51	1.2*	-1.7	.17	3.5**	1.0**	-.85**
27 - Okanogan Cty.	1.1	2.2**	1.0	1.2**	3.4**	.78**	-1.0**
28 - Ephrata	.49	.82	-1.7	.64**	3.5**	.83**	-.61**
29 - Moses Lake	.27	2.0**	-1.4	.62**	3.1**	.72**	-.62**
30 - Bellingham	.40	1.6**	-2.2*	.27	2.9**	.89**	-1.0**
31 - Mount Vernon	-.004	1.4**	-.79	.71**	2.4**	.91**	-1.1**
32 - Oak Harbor	.55	.--	-1.5	.49	2.4**	.82**	-.92**
33 - Everett Central	.81**	2.0**	-.71*	.40*	2.7**	.53**	-.07
34 - Everett East	-.16	1.8	-.43	.23	3.0**	.90**	-1.2**
35 - Forks, Port Ang.	1.4*	1.6**	-.99	.37	3.2**	.88**	-.78**
36 - Bremerton	.42*	1.4*	-.42	.35	3.5**	.90**	-1.5**
37 - Hoquiam	.35	2.0**	-.16	.44	3.2**	.99**	-.78**
38 - Shelton	-.64	.75	-.57	1.0**	2.5**	.84**	-.43*
39 - Raymond	.--	.--	-.62	-.19	3.0**	1.2**	-1.5**
40 - Morton	.--	1.9	.--	.72	2.9**	1.0**	-.84**

*p<.01, **p<.001 (two tailed)

"--" means not enough variation to estimate coefficient

Table S8 – Multinomial Logit Coefficients for Race and Contextual Variables (Discretionary Search Category of Search Dependent Variable)

	Black	Native American	Asian	Hisp.	Serious viols.	# of viols.	Daylight
APA							
1- Gig Harbor	.69	.--	-.28	1.7**	1.11	.17	-.62
2 - Tacoma Freeway	.71*	2.1*	-1.1	.17	2.6**	.52**	-.53*
3 - East Pierce Cty.	.06	1.9	-.21	1.1*	1.7**	.52**	-.34**
4 - Thurston Cty.	-.20	1.1	.-.11	.89**	2.1**	.41**	-.16
5 - Seattle North	1.4**	.--	-.47	.26	1.2	.35**	-.64*
6 - Seattle South	-.25**	.--	-.34	-.51	2.0**	.38**	.56
7 - Seattle East	-.74*	.--	-2.6*	-.69*	2.4**	.46**	-.50*
8 - Valley (King Cty)	-.15	.--	.77	.--	3.0**	.48**	-1.4**
9 - North Bend	-.89	1.8	-.34	.53	2.2*	.001	.03
10 - Enumclaw	.--	.--	.--	1.62	2.8*	-.25	-.38
11 - Yakima	1.2*	1.6**	.02	.56**	2.1**	.52**	.48
12 - Sunnyside	.--	.--	2.7	-.73	2.8**	.41	.78
13 - Kennewick	.--	.--	.--	.09	3.3*	.81*	-.69
14 - Walla Walla	1.1	2.0**	.--	1.1*	5.1**	.45*	-.55
15 - Colville	.--	.--	.--	.--	.--	.--	.--
16 - Ritzville	1.4*	3.0**	.34	1.6**	3.0**	.73**	.02
18 - North Spokane	1.2	.28	.--	.--	2.6**	.83**	-1.9**
19 - Spokane Valley	-.30	2.5**	.09	1.6**	2.7**	.71**	-1.9**
20 - Colfax	1.2	.--	.--	.--	4.2**	.48	.67
21 - Vancouver	.71	.--	.03	.47	2.3**	.46**	.18
22 - Goldendale	.--	2.1	3.4**	1.4*	.--	.07	-1.5**
23 - Kelso	1.3*	.--	.--	.29	1.5*	.37**	-.65
24 - Chehalis	.1.9*	.--	.--	.--	2.4**	.70**	.12
25 - Wenatchee	1.7	3.6**	2.6**	1.0*	2.2*	.14	-.35
26 - Ellensburg	1.1*	.--	-.84	.98**	3.0**	.54**	.20
27 - Okanogan Cty.	.--	1.1	.--	-1.9	3.5**	.83**	.33
28 - Ephrata	2.0**	3.3**	.--	.80	3.5**	.63**	-.22
29 - Moses Lake	.90	2.8**	.--	-.72	4.0**	-.13	.27
30 - Bellingham	.97	-.20	.03	.74	3.2**	.80**	-.90**
31 - Mount Vernon	.--	2.2**	.--	.09	2.7**	.89**	-.49
32 - Oak Harbor	2.0	.--	2.0	1.8	5.1**	.18	-2.4
33 - Everett Central	1.3**	1.4	-.42	1.1**	1.6**	.53**	-.07
34 - Everett East	.--	.--	.--	.--	4.0**	.37	-1.1
35 - Forks, Port Ang.	.--	2.2*	.--	.38	2.7**	.59**	-.21
36 - Bremerton	.62*	.82	-1.0	-.20	3.1**	.38**	-.50**
37 - Hoquiam	2.0*	.--	.--	1.2	3.5**	.79**	-.89*
38 - Shelton	.31	.--	.--	.66	2.4**	.71**	.05
39 - Raymond	.--	.--	.--	.--	.--	1.1**	.--
40 - Morton	.--	.--	.--	.--	.--	.73	-.08

*p<.01, **p<.001 (two tailed)

"--" means not enough variation to estimate coefficient

To summarize the most important findings with regards to search, we must first reiterate the need for caution in interpreting the analysis on searches and suggest some lines of future research (some of which are already in the planning stages) that would help us understand better the relationship between race and searches.

The major finding that must be acknowledged is that we continue to see apparent disparities in search rates among different racial and ethnic groups. Even when we control for other factors that influence whether or not searches are conducted after motorists are contacted by the WSP, we find that race still has an impact on the likelihood of a search in a number of locations. This observation must be tempered by other factors, however. Our multivariate analysis only included three variables that help to contextualize individual contacts, and each of these appears to have an important effect on the likelihood of a search. **Most importantly, the seriousness of the offense is the best predictor of a search being conducted – for nondiscretionary as well as discretionary searches.** Another noteworthy finding is that **while Black drivers, Hispanic drivers and Native American drivers are more likely to be searched than White drivers, the analysis reported here suggests that this is not a result of officers' use of discretion.** This finding helps us to eliminate possible systematic causes of the statistical disparities, but it does not identify possible causes of those disparities. Clearly there is more work to do here, particularly with respect to APA-level qualitative study.

While our findings with regard to searches are rather mixed and do not offer a complete explanation for the racial and ethnic disparities we have observed, we again call for caution in interpreting the result of any analysis of search relying upon the most recent traffic stop data collected by the WSP. There are simply too many remaining problems in the database and

possible effects from variables not considered in these analyses to support a statement that the statistical disparities witnessed in these data are the result of biased policing or discrimination in the use of law enforcement authority.

It is important for the purposes of training that officers be thoroughly trained to code specific types of searches more uniformly and consistently. For example, *all* officers should be coding DUI searches as searches, and it may be advisable to create an additional search category for searches pursuant to DUIs – if for no other reason than to encourage uniformity among officers' reporting of the matter. For us to draw any substantive conclusions about racial or other bias in searches, we need to first be assured that we have reliable and accurate data on the matter. Also, the code for pat down or frisk or "Terry" searches still needs to be made clear. It appears in the data that either "F" or "P" codes may be used to indicate such searches by some troopers. In addition, it is imperative that whether contraband was found, and what amounts and types of contraband were found, be more clearly indicated in the traffic stop data. It might be helpful to have a separate variable for contraband, and if such a step is taken, it might also be useful to identify categories of contraband found (e.g., drugs, weapons, open containers, other). We strongly suggest that such a change be made in the next iteration of the TARS.

Next, it would be helpful to have an indication of whether or not officers asked for consent to search. Recent U.S. Supreme Court decisions, such as United States v. Drayton (2002), in which broad consent searches on Greyhound buses in Tallahassee, Florida were upheld, makes the consent issue an important and timely one. It would be helpful for us, especially in considering future data collection (citizen surveys, focus groups and/or interviews with drivers and troopers) if we knew how often and when officers ask consent to search and

how often and when drivers refused, in addition to knowing when a consent search was conducted. Lastly, we believe that while large quantitative datasets and rigorous statistical analyses can help identify systematic trends and should be included in any study of biased policing and racial profiling, such data and such data analyses have some inherent limitations. Most importantly, it is simply impossible to capture every detail within the context of every traffic stop in a quantitative dataset, and these data cannot allow the researcher to "get inside the head" of the troopers who have to make difficult decisions in the heat of the moment. As we have continued to work with the WSP on this project, we have designed a portion of the citizens' survey (now underway) to help add details to our understanding of searches conducted by the WSP, and we are in the planning stages of designing interviews with officers and motorists that will also shed light on the matter. This research is immensely complex in scope and dimension, and it will be necessary to analyze searches from multiple perspectives and at various data points before we can make final conclusions on searches. We believe we have come a long way and that we are on a fruitful path toward doing so.

2003 Citizen Survey Results (Preliminary)

Throughout this report we have acknowledged the limitations of the data used in the foregoing analyses, and we have cautioned that some of our findings must be considered with caution due to unavailability or unreliability of data. As discussed previously, one limitation of this study is that baseline traffic violation rate data are not available as a standard of comparison. Such baseline data may prove useful for comparison purposes, particularly if there is a close linkage between the reasons for stop and observed violation data. In other words, baseline violation data would be most useful for comparison purposes if the violators who made up the

study sample had committed the same traffic infraction as those who comprised the comparison population. Comparing the racial characteristics of speeders in the study sample to speeders in the comparison population would be appropriate; comparing red light violators to speeders would be less defensible, for example.

Research on the question of biased policing/racial profiling should also give more consideration to data gathering techniques that do not involve agency-generated records of traffic stops. As discussed above, racial profiling is such a sensitive issue, both for individual officers and for law enforcement agencies, that the threat of reactivity and bias from official traffic stop records is perhaps an even greater concern than with other kinds of police-generated data. Comparing official traffic stop records to field observations by independent researchers might be a useful strategy in identifying discrepancies, if any, between actual practice and agency-provided data.

Additional WSP sources of data for contextualization and comparison have been identified which will require coordination with the Patrol's Traffic Stop Data Committee. These include the capturing of information on special patrols, targeted enforcement activity, and all other management-directed activity that would work to reduce individual trooper discretion. Other sources of data have also been identified. The first of these is statewide criminal booking data, which would provide a fourth standard of comparison (after Accidents, DUI BAC tests, and census demographics) against which to measure Patrol enforcement activity rates. The second additional source allows a different sort of triangulation or validation. WSU has conducted several periodic citizen surveys for the Patrol. The most recent of these, conducted in 1999, drew upon citizen contact records to sample from citizens who had known contact with the

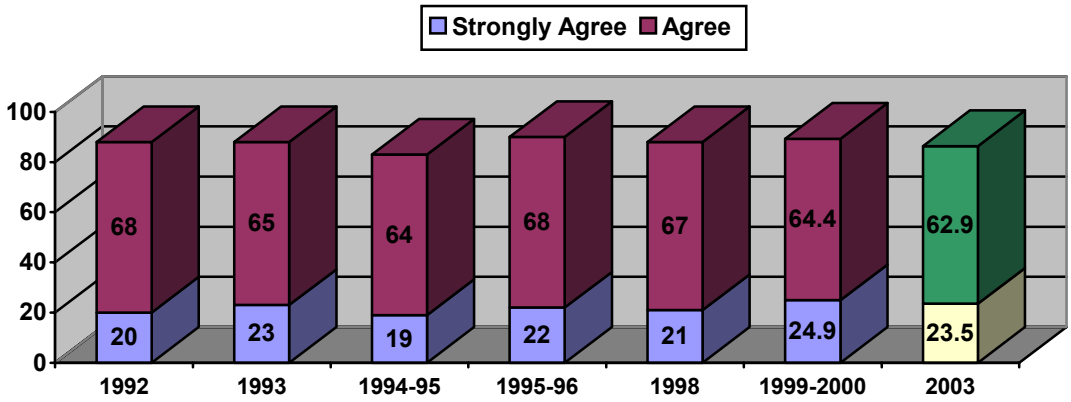
Patrol in the previous year. Expanding upon this periodic (CALEA accreditation) statewide survey to explore the contextual elements of traffic stops by a deliberate sampling of minority citizens known to have been stopped by WSP officers to explore their perceptions and experiences with regards to discretionary enforcement activity provides another "denominator" comparison for this study.

WSU is currently conducting another such statewide survey for the WSP. This year, specifically to obtain data applicable to the biased policing question, the agency agreed to dramatically expand the size of the survey project. A total survey sample of 11,000 is being studied. This sample was drawn in several segments – to obtain information most useful to the study of biased policing. First, a *statewide random sample* of 3,000 citizens was drawn. Second, a statewide sample of 2,000 *minority drivers* was drawn from Patrol records of those who have had contact (of all types) with the Patrol in the past year. Third, samples of 1,000 drivers each were drawn from WSP records of those who were *rendered assistance*, *ticketed*, or given either a *written warning* or a *verbal warning*. Lastly, smaller samples (approximately 333 each) were drawn from *six APAs* initially identified as exhibiting disparities in enforcement activity at some level of analysis. A self-administered survey was then mailed to every member of the various samples. This process is being repeated following Dillman's *Total Design Method*, which calls for three mailings to all non-respondents to maximize opportunity and response rates. The third wave of this process is currently underway. Final results of this survey will be reported separately at a later time. However, preliminary discussions of the results obtained to date are possible, and such analyses shed interesting light on the questions raised above with regards to biased policing.

To date, a total of 2,325 completed surveys have been received and are included in this preliminary analysis. In addition to a core of questions which have been included in all previous surveys, a number of questions specifically aimed at the question of biased policing and traffic enforcement were included in this iteration of the survey. While responses are not yet sufficient in number to allow discussion of results for the smaller (APA) samples with any degree of confidence, it is possible to draw some preliminary observations from the data analyzed to date and to discuss these survey findings with confidence concerning statewide phenomena related to public perceptions of biased policing.

First, it should be noted that the Washington State Patrol received, again this year, high marks in terms of overall citizen satisfaction with officer and agency performance. Figure 1 provides a graphical comparison of the various years' responses on the question of overall respondent satisfaction with WSP services.

Figure 1 – Overall Mission Performance.



Indeed, the citizen ratings received so far in this survey process are in line with the responses received in previous years, all of which are quite good. Of particular note to this report are responses to questions concerning racial profiling. Compared with nationwide

perceptions on how widespread the practice of racial profiling is (as reported in connection with the Gallup poll discussed above), respondents to the WSU survey are much less likely to view the WSP as practicing bias in policing than is reported in the national poll. In response to a question concerning how widespread the practice of racial profiling is within the WSP, the percentage of minority respondents indicating a perception that racial profiling was a problem and that the practice was "widespread" in the WSP was 26.2% among Blacks, 28.8% among Latinos, 33.4% among Asians, and 25% among Native American survey respondents. Nearly a quarter of Whites (22%) who felt racial profiling was a problem believed that the practice was widespread in the Patrol. These figures compare quite favorably to the Gallup poll's reported 70 percent for non-whites and 56 percent for Whites.

Even though the attitudes of Washington state's citizens are less critical of law enforcement on the issue of racial profiling than those of Americans generally, it is the case that far more evidence of biased policing has been documented in other states and urban centers than has been found in our research in this state in the areas of stops, rate of citation, and rate of search. The fact that substantial percentages of both White and minority citizens in Washington believe that racial profiling is a problem in the WSP indicates that an undesirable gap between what many citizens believe and what is actually the case with respect to biased policing exists in the Evergreen State. This gap, if not appropriately addressed, could lead to a lessening of trust in the agency and a lower level of public cooperation with its efforts to promote traffic safety and public order across the state.

Conclusion

A comprehensive study of racial profiling is complex, difficult, and expensive to conduct. The various data collection methods discussed above each have significant costs associated with them. For these and other more political reasons, law enforcement agencies typically have little incentive to voluntarily collect racial profiling-related information. The current state of national racial profiling research leaves agencies, courts and policymakers ill-equipped to reach reliable conclusions concerning the possible unequal treatment of minorities by police in the traffic stop setting. The Washington State Patrol, however, has admirably positioned itself to make use of data systematically collected and rigorously analyzed in making policy and training decisions, and to provide the lessons learned from that process to others. Examination of those data indicates several significant things. **First, there does not appear to be a systemic problem with biased policing within the Washington State Patrol. No significant disparities in stop rates were observed across racial/ethnic classifications of drivers.** While there are small observable racial and ethnic group disproportionalities evident in the WSP data with regards to rates of citation, most of those appear to be explainable in the context of other data and observations – specifically, other situational factors which impact the decision to cite. These factors include number and seriousness of observed violations. More sophisticated **multivariate analyses taking these contextual variables into account confirm that there is no apparent systemic problem with biased policing within the State Patrol at the level of decision to cite.** Finally, while observed disparities do exist **with regards to searches, they are clearly dependent upon geographic distinctions, and are also more strongly determined by contextual variables such as severity/number of violations than by race/ethnicity.** All

models and types of comparison speak well for the training, policies, and personnel of the Washington State Patrol. If problems exist with biased policing at all (a finding that cannot be supported with confidence given the state of the search data), it is at the level of search in some APAs, not widespread within the Patrol. All other indicators are that the Patrol may serve as an exception to the developing national experience that data analysis does reveal significant bias in policing. Not addressed in detail in this report are the broad policy questions attendant upon the observations that many observed differences in treatment are strongly tied to what might be termed historic and/or socio-economic differences between race/ethnic groups. These differences are clearly not the result of current activities by the Washington State Patrol.

The record of cooperation between the WSP and the WSU research team bodes well for further research and analysis, as does the track record to date of the Washington State Patrol's willingness to inform both training and policy-making with relevant data. Sufficient progress has been made on refining and clarifying the data collection and reporting process, and on the identification of promising approaches to data analysis, particularly with regard to additional sources of data, that it is possible to predict with some confidence that much more definitive conclusions will be possible from future analyses.

Bibliography

Alpert, G. & Dunham, R. (1999). "The Force Factor: Measuring and Assessing Police Use of Force and Suspect Resistance." In Use of Force by Police: An Overview of National and Local Data (pp. 45-60). Washington, D.C.: National Institute of Justice.

Bittner, E. (1991). "The Functions of Police in Modern Society." In C. Klockars & S. Mastrofski (Eds.). Thinking About Police (2d ed.) (pp. 35-51).

Boydstun, J. (1975). San Diego Field Interrogation: Final Report. Washington, D.C.: Police Foundation.

Brown, P.L. (2001). "Drag Racing 21st Century Style." New York Times, July 22nd.

Christopher Commission. (1991). Report of the Independent Commission on the Los Angeles Police Department. Los Angeles: Author.

Davila, F. (2002). "Traffic Stop Data Won't Halt Debate Over Racial Profiling." Seattle Times, March 15.

Davis, R.L. 2001. Racial Profiling: What Does the Data Mean? Washington, D.C.: National Organization of Black Law Enforcement Officers.

Dodd, V. (2003). "Police Could Face Action Over Stop and Search." The Guardian, March 21st.

Eboda, M. (2003). "When Being Black and Driving a Jaguar Makes You a Criminal." The Observer, February 23rd.

Ellis, H., B. Nelson, O. Crosby and L. Morgan. (2000). "Seatbelt Laws." Journal of Healthcare for the Poor and Underserved. 11:144-150.

Engel, R.S., J.M. Calnon, and T.J. Bernard. (2002). "Theory and Racial Profiling: Shortcomings and Future Directions in Research." Justice Quarterly. 19:249+.

Federal Bureau of Investigation. (1998). Uniform Crime Reports. Washington, D.C.

Flanagan, T. & Vaughn, M. (1995). "Public Opinion About Police Abuse of Force." In W. Geller & H. Toch (Eds.), And Justice for All: Understanding and Controlling Police Abuse of Force. (pp. 113-131). Washington, D.C.: Police Executive Research Forum.

Florida Highway Patrol. (2000). Race study of the Florida Highway Patrol. Available: www.fhp.state.fl.us/html.

Fridell, L. R. Lunney, D. Diamond, B. Kubu, M. Scott and C. Laing. (2002). Racially Biased Policing: A Principled Response. Washington, D.C.: Police Executive Research Forum.

Garner, J., Buchanan, J., Schade, T., & Hepburn, J. (1996). Understanding the Use of Force by and Against the Police. Washington, D.C.: National Institute of Justice.

Garner, J. & Maxwell, C. (1999). "Measuring the Amount of Force Used by and Against the Police in Six Jurisdictions." In Use of Force by Police: An Overview of National and Local Data (pp. 25-44). Washington, D.C.: National Institute of Justice.

Geller, W. & Scott, M. (1992). Deadly Force: What We Know. Washington, D.C.: Police Executive Research Forum.

General Accounting Office. (2000). Racial Profiling: Limited Data Available on Motorist Stops. [Report to the Hon. James E. Clyburn]. Washington, D.C.: Author.

Hagan, J. and K. Bumiller. (1983). "Making Sense of Sentencing: A Review and Critique of Sentencing Research." In Research on Sentencing: The Search for Reform, Vol. 2, A. Blumstein, J. Cohen, S. Martin, and M. Tonry (Eds.), Washington D.C.: National Academy (pp. 1-54).

Harris, D.A. 2002. Profiles in Injustice (Why Racial Profiling Cannot Work). New York: The New Press.

Harris, D. (1999). "The Stories, the Statistics, and the Law: Why 'Driving While Black' Matters." Minnesota Law Review 84 (December), 265-326.

Hepburn, J. (1978). "Race and the Decision to Arrest: An Analysis of Warrants Issued." Journal of Research in Crime and Delinquency 15: 54-73.

Hindelang, M, Hirschi, T., & Weiss, J. (1979). "Correlates of Delinquency: The Illusion of Discrepancy Between Self-report and Official Measures." American Sociological Review 44: 995-1014.

Ho, V. and M. Barber. (2002). "Black Leaders, Media, Draw Critics After Deputy Killed." Seattle Post-Intelligencer, June 26th.

Holt, G. (2003). "City Struggles to Understand as Street Racing Kills Teenager." Seattle Post-Intelligencer, March 5th.

Interim Report of the State Police Review Team Regarding Allegations of Racial Profiling. (1999). New Jersey: Office of the Attorney General.

Jones, R. L. 2002. "New Jersey Prosecutors Cite Racial Profiling in Dismissal of 86 Criminal Cases." New York Times, April 20.

Kennedy, R. (1997). Race, Crime, and the Law. New York: Pantheon.

Klinger, D. (1996). "Bringing Crime Back In: Toward a Better Understanding of Police Arrest Decisions." Journal of Research in Crime and Delinquency 33:333-336.

Knowles v. Iowa, 525 U.S. 113 (1998).

Kocieniewski, D. (2002). "Study Suggests Racial Gap in Speeding in New Jersey." New York Times, March 21.

Lamberth, J.D. (1997). Report of John Lamberth, Ph.D.. American Civil Liberties Union. [On-line] Available: www.aclu.org/court/lamberth.html.

Leitzel, J. 2001. "Race and Policing." Society 38:38-42.

Mann, C.R. (1993). Unequal Justice – A Question of Color. Bloomington: Indiana University Press.

Martin, S. (1980). Breaking and Entering. Berkeley: University of California Press.

McDonald, H. (2001). "The Myth of Racial Profiling." City Journal 11.

McMahon, J., J. Garner, R. Davis and A. Kraus. (2002). How to Correctly Collect and Analyze Racial Profiling Data: Your Reputation Depends on It. Washington, D.C.: U.S. Government Printing Office.

McNamara, J. (1967). "Uncertainties in Police Work: The Relevance of Police Recruits' Backgrounds and Training." In D. Bordua (Ed.), The Police: Six Sociological Essays (pp. 163-252). New York: Wiley.

McNeely, R. & Pope, C. (1981). "Socio-economic and Racial Issues in the Measurement of Criminal Involvement." In R. McNeely & C. Pope (Eds.), Race, Crime and Criminal Justice (pp. 31-47). Beverly Hills: Sage.

Medina, J. (2000). "Survey: Black Men Buckle Up Less." Denver Post, June 17th.

Menard, S. (1987). "Short-term Trends in Crime and Delinquency: A Comparison of UCR, NCS, and Self-report Data." Justice Quarterly 4: 455-474.

Mosher, C. (1996). "Minorities and Misdemeanors: The Treatment of Black Public Order Offenders in Ontario's Criminal Justice System – 1892-1930." Canadian Journal of Criminology 38:413-438.

Mosher, C. (1998). Discrimination and Denial. Toronto: University of Toronto Press.

Mosher, C.J., T.D. Miethe, and D.M. Phillips. 2002. The Mismeasure of Crime. Thousand Oaks, California: Sage.

Neuman, L.W. (1997). Social Research Methods: Qualitative and Quantitative Approaches. Boston, MA: Allyn and Bacon.

New York Attorney General's Office. (1999). The New York City Police Department's "Stop & Frisk" Practices. New York: Author.

Niederhoffer, A. (1967). Behind the Shield. Garden City, N.Y.: Anchor Books.

Osgood, D.W., O'Malley, P., Bachman, J., & Johnston, L. (1989). "Time Trends and Age Trends in Arrests and Self-reported Illegal Behavior." Criminology 27: 389-417.

Papp, L. and J. Duncanson. (2003). "Profiling Debate Widespread." Toronto Star, March 1st.

Pressley, S. (2002). "Street Racing Taking a Toll Nationwide." Seattle Times, April 7th.

Ramirez, D., J. McDevitt, and A. Farrell. 2000. A Resource Guide on Racial Profiling Data Collection Systems. Washington, D.C.: U.S. Department of Justice.

Ratcliffe, H. (2003). "Girl is Killed, Brother is Hurt in Crash Linked to Street Racing in South County." St. Louis Post-Dispatch, March 29th.

Report of the National Advisory Commission on Civil Disorders. (1968). New York: E.P. Dutton.

Reiss, A., Roth, J., & Miczek, K. (1994). Understanding and Preventing Violence. Washington, D.C.: National Academy Press.

Russell, K. (1998). The Color of Crime. New York: NYU Press.

San Diego, California Police Department. (2000). Vehicle Stop Study: Mid-year Report. San Diego, California.

San Jose, California Police Department. (1999). Vehicle Stop Demographic Study. San Jose, California.

Schniffer, K. (2002). "The Fast and Dangerous Seeing More Blue, Flashing Lights." Everett Herald, May 12th.

Shephard, M. (2003). "Seattle Offers Insights into Police Profiling." Toronto Star, February 9th.

Sherman, L. (1980). "Causes of Police Behavior – The Current State of Quantitative Research." Journal of Research in Crime and Delinquency 17: 69-100.

Sherman, L. & Cohn, E. (1986). Citizens Killed by Big City Police. Washington, D.C.: Crime Control Institute.

Simon, S. 2001. "Police Slow Down after Cincinnati Riots." Los Angeles Times, July 15.

Smith, M. and G. Alpert. (2002). "Searching for Direction: Courts, Social Science, and the Adjudication of Racial Profiling." Justice Quarterly 19:673-703.

Smith, M., Petrocelli, M., & Piquero, A. (2001). Conflict Theory and Racial Profiling: An Empirical Analysis of Police Traffic Stop Data. Unpublished manuscript.

Snyder, H. & Sickmund, M. (1999). Juvenile Offenders and Victims: 1999 National Report. Washington, D.C: National Center for Juvenile Justice.

Thatcher, D. 2001. "From Racial Profiling to Racial Equality: Rethinking Equity in Police Stops." Paper presented at Annual Meetings of the American Society of Criminology, Atlanta.

Tizon, A., and R. Forgrave. 2001. "Wary of Racism Complaints, Police Look the Other Way." Seattle Times, June 26.

Tonry, M. (1995). Malign Neglect. New York: Oxford University Press.

United States Department of Justice. 2000. Police Public Contact Survey. Washington, D.C.: U.S. Government Printing Office.

Visher, C. (1983). "Gender, Police Arrest Decisions, and Notions of Chivalry." Criminology 21:5-28.

Walker, S. (1999). The Police in America: An Introduction. Boston, MA: Mc-Graw-Hill.

Walker, S. 2001. "Searching for the Denominator: Problems with Police Traffic Stop Data and an Early Warning System Solution." Unpublished paper.

Ward, J. (2002). "Race, Ethnicity, and Law Enforcement Profiling: Implications for Public Policy." Public Administration Review 62:726-735.

Whren v. United States, 517 U.S. 806 (1996).

Wilbanks, W. (1987). The Myth of a Racist Criminal Justice System. Monterey, CA: Brooks/Cole.

Worden, R. (1995). "The 'Causes' of Police Brutality: Theory and Evidence on Police Use of Force." In W. Geller & H. Toch (Eds.), And Justice for All: Understanding and Controlling Police Abuse of Force. (pp. 31-60). Washington, D.C.: Police Executive Research Forum.

Zingraff, M., W. Smith and D. Tomaskovic-Devey. (2000). North Carolina Highway Traffic and Patrol Study: Driving While Black. The Criminologist 25: 1-4.

Appendix 1

Nineteen of the autonomous patrol areas match county boundaries, although in some instances they span multiple counties. These 19 APAs are: 4, 13, 14, 15, 20, 21, 22, 23, 25, 26, 27, 30, 31, 32, 35, 36, 37, 38, and 39. Another 16 of the APAs are some portion of only one county (the eastern half, or only the freeway corridor, for example). These APAs are: 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 19, 24, 33, 34, and 40. This leaves four APAs that are combinations of parts of counties (16, 18, 28, and 29). This does indicate, however, that we can fairly confidently overlay census population data in 35 out of the 39 APAs. The following list of APAs indicates which county or counties they are part of. The estimation of APA boundaries is based upon a map provided the Washington State Patrol.

1. **Gig Harbor**: Completely within the confines of Pierce County.
2. **Tacoma Freeway**: Completely within the confines of Pierce County.
3. **East Pierce County**: Completely within the confines of Pierce County.
4. **Thurston County**: Matches Thurston County.
5. **Seattle North**: Completely within the confines of King County.
6. **Seattle South**: Completely within the confines of King County.
7. **Seattle East**: Completely within the confines of King County.
8. **Valley (King County)**: Completely within the confines of King County.
9. **North Bend**: Completely within the confines of King County.
10. **Enumclaw**: Completely within the confines of King County.
11. **Yakima**: Completely within the confines of Yakima County.
12. **Sunnyside**: Completely within the confines of Yakima County.
13. **Kennewick**: Matches Benton and Franklin Counties. Variables are weighted (based on county population) means, with the exception of population density, which is based on total size and population of the counties.
14. **Walla Walla**: Matches Walla Walla, Columbia, Garfield, and Asotin Counties. Variables are weighted means, based on county population, with the exception of population density, which is based on total size and population of the counties.
15. **Colville**: Matches Ferry and Stevens Counties. Variables are weighted means, based on county population, with the exception of population density, which is based on total size and population of the counties.
16. **Ritzville**: Lincoln and eastern Adams Counties. As eastern Adams county is more likely to resemble Lincoln county that it is to resemble western Adams, data for this APA

matches Lincoln County.
18. **North Spokane**: Northern Spokane and all of Pend Oreille County. As northern Spokane County is more likely to resemble Pend Oreille than it is the rest of Spokane County (which includes the city of Spokane), data for this APA matches Pend Oreille County.
19. **Spokane Valley**: Completely within the confines of Spokane County.
20. **Colfax**: Matches with Whitman County.
21. **Vancouver**: Matches with Clark County.
22. **Goldendale**: Matches Skamania and Klickitat Counties. Variables are weighted
23. **Kelso**: Matches Cowlitz County.
24. **Chehalis**: Completely within the confines of Lewis County.
25. **Wenatchee**: Matches Chelan County.
26. **Ellensburg**: Matches Kittitas County.
27. **Okanogan County**: Matches Okanogan County.
28. **Ephrata**: Combines all of Douglas and Northern Grant County. Variables are weighted means, based on county population, with the exception of population density which is based on total size and population of the counties.
29. **Moses Lake**: Combines the southern portion of Grant County with the western tip of Adams County. Used Grant County data.
30. **Bellingham**: Matches Whatcom and San Juan Counties.
31. **Mount Vernon**: Matches Skagit County.
32. **Oak Harbor**: Matches Island County.
33. **Everett Central**: Completely within the confines of Snohomish County.
34. **Everett East**: Completely within the confines of Snohomish County.
35. **Forks, Port Angeles**: Matches Clallam and Jefferson Counties. Variables are weighted means, based on county population, with the exception of population density which is based on total size and population of the counties.
36. **Bremerton**: Matches Kitsap County.
37. **Hoquiam**: Matches Grays Harbor County.
38. **Shelton**: Matches Mason County.
39. **Raymond**: Matches Pacific and Wahkiakum Counties. Variables are weighted means, based on county population, with the exception of population density which is based on total size and population of the counties.
40. **Morton**: Completely within the confines of Lewis County.